HAM RADIO NEWS

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"AMATEUR RADIO - A NATIONAL RESOURCE"

THE NEW ARSI TEAM

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PRESIDENT'S REPORT

As the President of ARSI, I send you my warmest greetings.
The new committee has set for itself some definite objectives. ARSI needs to be strengthened and the only way forward is to increase its membership. We plan to work with the Government to bring about changes in the outdated rules under which we are presently governed. Correspondence has already been initiated, but it will take time as the changes have to be done through the regular governmental procedures.
We aim to work towards a permanent headquarters for ARSI which will house a permanent QSL Bureau with possibly a paid manager. Ham Radio News, our quarterly communication containing a lot of news on Ham radio, needs to be made completely self sufficient financially. HRN needs articles of interest to the ham community- technical, news from other countries, club activity etc, and I request all members to start sending such information to the editor. Use your contacts to get at-least one page of advertising for HRN at Rs. 1500.00 per page, every quarter. This by itself will release funds for other activities as HRN and our subscription to IARU consumes most of our available funds. It is essential for HRN to not only be continued but also increased in size and content.
In order to improve communication between the Society and its members, you will be hearing from me and other members of the GC on a regular basis hereafter and we would welcome your feedback. We wish to increase the activity on the bands by holding regular contests etc,
and to achieve all this, your committee needs funds and you as an individual member can assist in several ways. If you are an annual member, consider becoming a life member. The cost (Rs. 2250.00) is very low compared to many societies, by today's standards, and importantly, you do not have the hassle of having to send a subscription each year.
In case you are not up to date with your subscription, please do so without delay and also upgrade to a life membership. I am writing individual letters to all on our list who are shown as having dues to ARSI. Some members have already responded and we have started getting old dues in. Members could also consider becoming a Patron by paying a lump sum of say, Rs.10,000.
We hope to bring in radical changes for Hams in India. But to talk to the government, we need the solid support or each and every ham in our country. Let us all work towards better conditions for this wonderful hobby. I request all clubs to give ARSI their support to make a rock solid organization.
My committee and I will work hard to achieve all our goals.
73
Gopal

THE EDITOR SPEAKS

Hello all, and it is my pleasure to continue as editor of the HRN for the fourth year in succession! I thoroughly enjoy this job and its my way of contributing my thanks to this wonderful hobby, which gave a totally different facet to my otherwise mundane personality as educated housewife with grown up children and a busy husband! Thanks everybody for your support, but I do have a few grouses!!! I do wish that those who read the magazine, write to me with their comments. I am open to praise as well as brickbats. I wish that you contribute articles for publication. The world knows that technically, we Indians are a class apart. HRN is your magazine and you should share your knowledge with others.
I welcome VU2GMN, Gopal as our new President. Gopal, is well known in amateur radio circles here in India and abroad and I am sure ARSI will be greatly benefited by his leadership. He has already written personal letters to hams to renew their membership to the society. Please do respond to this effort and send in your memberships at the earliest.
Gopal and his team, which includes VU3KKZ, Rajaram as secretary, are full of ideas and hope to revolutionize the face and working of ARSI. It is high time that we as hams realize that what is needed is a strong national organization, which would be the voice of hams in India. It is not that the government is not concerned with our problems. Its just that we never discuss our problems with them. Governments all over the world, do not talk to individuals, but they do respond to a representative organization. So we must strengthen the ARSI, which is the only recognized body by the IARU. Its time that we stop thinking of our own selfish needs and work towards a better environment for all. Its time that we stopped looking back at what happened, stop analyzing the situation and just roll up our sleeves and start working for a better tomorrow.
The WPC at present has a wonderful team, who are sensitive to the issues of amateur radio. The only problem is that there are not enough people in the department to tackle both new licences and clearing old pending ones. The new announcement about the restructuring of licences has been announced but there are many unanswered questions and confusion, which the WPC has promised to clarify in a few months and we need to be patient.
So once again, my fellow hams, please strengthen the ARSI, for a better tomorrow.
73
Sarla

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The current address of the society is
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PAYMENT INSTRUCTIONS

All payments to be made by draft in the name of ARSI payable in Bangalore. Money Order can be sent to the above address. No payments by cheques please.

ARSI NEWS GROUP

http://groups.yahoo.com/group/ARSI
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Contents :

Membership	Admission	Annual
Category	Fees(Rs)	Fees(Rs)
Patron	15000	Nil
Life* (For existing Corporate member)	2250	Nil
Life *	2450	Nil
Corporate (Individual with Valid Amateur Licence)	50	150
Corporate (Club, Society or Institution with Licence)	100	200
Associate (Individual, no Licence required)	50	75
Associate (Club, Society or Institution without Licence)	100	200
Student Member	20	30

*Senior citizens ,i.e, those above 65 yrs, can become life members by paying Rs.1000 only, instead of 2250(1200/- for NEW senior non members instead of 2450/)-YLs will be entitled to this reduced rate after they reach 60 yrs.

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ADDRESS OF THE OUTGOING PRESIDENT R. RAMCHANDRA AT THE AGM OF ARSI.

The present committee was elected at the AGM held in Gandhinagar during November 2003. At the outset we had to loose the secretary Bobji vu2rkc as he resigned for personal reasons. The documents from the secretary of previous Committee Adolf VU2AF was received in two installments over a period of one year. The accounts of the society were being maintained in two places Mumbai and Delhi. The treasurer of the previous committee Raman could not submit his statement of accounts for more than a year. In spite of this initial difficulties we managed to keep ARSI going and have improved its health and many new activities have been taken up.

Website : After much effort from many members we have finally managed to setup our web site. It is being updated regularly and improved. We hope that not only ARSI members but all the Ham community will use this web site for information. We thank OM Sanjay Madhavan VU2SJD for hosting this web site and managing it. The website can be accessed at www.arsi.info.

Emergency Fund: We have received a little more than Rs.1 Lac from JARL. They collected money from Hams in Japan for giving to Amateur Radio Societies from countries effected by Tsunami. The amount received was our share. We have thanked the contributors and JARL. This amount has been put in a FD with our bank. The committee is of the view that this amount should be used as seed money for assisting emergency operations. Part of it can be used to buy equipments for use during emergency operations and part to supplement expenses incurred by volunteers who go for emergency operation. In order to be more effective we have to collect more money for this fund.

MOU with Karnataka Red Cross : We are in advance stage of negotiations with Karnataka Red Cross and hope to sign this agreement soon. Once the agreement is signed we will have a place in the Red Cross Building where we can set up our CLUB station. It will be used for general Ham activities during normal times and when there is an emergency it will be the coordinating station. We have to thank OM Ajoy VU2JHM as he has taken very active interest in the negotiations with Red Cross.

HRN Ham Radio News is being published regularly from Mumbai. There are complaints that some time our members do not get their copy. This we found to be mainly because members do not pay their subscription in time or because they have not informed us about the change in their address in time. So far we have been sending HRN to members who are in arrears for two years with a hope that they will pay. This has not been very encouraging and form the coming year we should send HRN only members who are one year in arrears. As we do not get regular advertisements the cost of printing and posting HRN has to come out of our account. We have to try and get enough regular advertisements at least to cover the cost of publication and postage. We have been able to keep this activity going only because of the tireless effort being put up by YL Sarla VU2SWS. We have to thank her for this good work.

International YL conference. This conference is being organized by YL Sarla under the sponsorship of ARSI. At the out set let me assure you that no ARSI funds are involved. This conference is held every year in different country. YLs and some OMs who participate in this get together pay for all their expenses which includes traveling with in the country for sight seeing and participating in cultural programs planed for them. By supporting YL Sarla in this project we feel that ARSI will get good publicity. We wish the International YL conference which is to be held in Oct. this year all success.

International representation of ARSI : International Amateur Radio Union holds meetings at regularly. We are part of IARU region 3.When I attended the region 3 conference in 2004 I was elected as one of the Directors of the region 3. At the same conference on my request it was agreed that the next conference of region 3 will be held in India this year in Aug. For hosting this conference the cost for ARSI will be very small. In last years budget we had some provision to put aside some amount towards this cost. We did not have enough money for this so we propose to meet the expense from sponsorships.

IN 2004 I attended region III directors conference in Tokyo. On the way I stopped over in China and was able to see some Amateur radio activities in that country. From China I was able to bring back some equipments used in ARDF competition as required by international regulations. We have to have a number of these equipments to conduct a competition. We are trying to make the required number of equipment so that we can conduct ARDF competitions. This is similar to our Fox Hunt but there are 6 foxes and the competitors have to go on foot.

In 2005 I attended the IARU region 1 conference in Switzerland and we also had the region 3 Directors meeting in Bangalore. All these international participation has been accomplished with out any expense to ARSI.

QSL Bureau: The ARSI QSL Bureau has had a very checkered history, originally it was in Delhi then it was sifted to Chennai were OM Vittal VU2VIT was managing the QSL Bureau then it was moved to Bombay were it functioned for some time. About four years ago it was shifted to Calcutta where OM Dipti Da VU2DPD is managing the Bureau. With so many shiftings the Indian hams are not very popular in the International Amateur Radio with regards to sending and receiving QSL cards. This is also because many of the Amateur Radio Operators in India promised QSL cards when they make a contact but never send it because of the cost of postage or they just don't care. The latest report from Dipuda only Forty-three members of ARSI participate in the QSL Bureau, whereas two hundred and seventy-five kilos of cards were received and posted to members only seven and half kilos of cards were sent abroad. In order to streamline the Bureau it is necessary to decide on the payment to be made for QSL cards both incoming and outgoing. It may be worthwhile to consider giving cards to non-members on payment of higher rate. Dipuda has agreed to continue as QSL Bureau Manager for some more time, and we must thank him for that.

(Extract from the Gazette of India-Extraordinary)

MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY

(Wireless Planning and Coordination)

NOTIFICATION

New Delhi the 9th June 2005

G.S.R. 385(E).- In exercise of the powers conferred by Sections 4 and 7 of the Indian Telegraph Act, 1885 (13 of 1885), the Central Government hereby makes the following rules further to amend the Indian Wireless Telegraphs (Amateur Service) Rules 1978.namely:-

1)Sort Title and commencement:- (1) These rules may be called The Indian Wireless Telegraphs(Amateur Service) Amendment Rules,2005. (2)They shall come into force on the date of their publication in the Official Gazette

2)In the Indian Wireless Telegraphs (Amateur Service) rules. 1978,(hereinafter referred to as "the said rules) for Rule 4, the following rule shall be substituted, namely:-

"4, Categories of Licence: There shall be two categories of licences, namely
(i)Amateur Wireless Telegraph Station Licence(General)
(ii)Amateur Wireless Telegraph Station Licence(Restricted)"

3) In rule 5 the said rules:-

(a)in sub rule(1) in the proviso, for the words and figure "Station Licence Grade-II, the words and brackets "Station Licence (Restricted) shall be substituted;(b)In sub rule (2) for the portion beginning with the words "Notwithstanding anything contained" and ending with the words, Short wave Listeners Amateur Wireless Telegraph Station Licence"., the following words, brackets and letters shall be substituted, namely:-

"Notwithstanding anything contained in clause (b)of sub-rule (1), the Central Government may grant to bonafide experimenters between the age of 12 and 18 years, Amateur Wireless Telegraph Station Licence (General) or Amateur Station Licence (Restricted):"

4)In rule 7 of the said rules:-a)for clause (b) the following clause shall be substituted, namely:-

(b)such person pays the fees on the following scale, namely:
(i) Amateur Station Operators Examination (General)-Rs.. 100.00
(ii)Amateur Station Operators Examination (Restricted) Rs. 100.00
(b)clause (c) shall be omitted

5)In rule 8 of the said rules, for sub-rule (2) the following sub-rule shall be substituted, namely:-"(2) An application for Licence in Annexure-II to the rules shall be submitted not later than one month before the date of the desired examination."

6)For rule 11 of the said rules, the following rule shall be substituted, namely:- !!.

Period of Validity- (1) A Licence granted under these rules shall be issued for a period of 20 years or lifelong as the case may be commencing on the date of issue of the Licence and expiring on the last date of the month preceding the month of issue.

(Explanation:- For the purpose of this rule, the expression "life long:" means till the holder attains the age of 80 years. The validity of the life long Licence may be extended on specific request of the Licence holder for 10 years at a time without any additional payment."

7)In rule 12 of the said rules, for sub-rule (1) the following sub-rule shall be substituted, namely:_"(1) A Licence fee on the following scale shall be payable to the Central Government on receipt of instructions from that Government and in the manner directed by it:-

Category of Licence Fees in Rupees	20years	Life Long
(i)Amateur Wireless Telegraph	1000	2000
(ii)Station Licence (General)	1000	2000

8)In rule 14 of the said rules, in sub rule(10:-

(a)for the words "two or five years, as the case may be" the words" twenty years" shall be substituted;(b) for clause (c) the following clause shall be substitute, namely"© Pays a fee of Rs.1000/-"

9)In rule15 of the said rules:-

(i)for the words "two years" the words "five years" shall be substituted;(ii)for letter and figures :Rs.10/- the letters and figures "Rs.100/-" shall be substituted

10)In the said rules, in the proviso of rule 17, for words "rupees Five", Rs. 200/-" shall be substituted

11)In the rule 18 of the said rules, in sub rule (1)

(a) for clause (ii) the following shall be substituted namely:-"(ii) the applicant holds an Amateur Wireless telegraph Station Licence (General)(b)in clause (iii) for the letters and figures "Rs10/- the letter and figure"Rs.200/-" shall be substituted

12)In the rule 20 of the said rules, in sub-rule(2)

(a)in clause(i) for the letters ar.d figures "Rs.10/-" the letters and figure "Rs100/-" shall be substituted (b)in clause (ii) for the letters and figures "Rs5/-" the letters and figures "Rs 100/-" shall be substituted.

C. Rama Rao, Assistant Wireless Advisor.

Enclosure I
2 MLE

Like its predecessor, the second Global Amateur Radio Emergency Communications Conference (GAREC-2006), will take place in Tampere, Finland, on 19-20 June 2006. This year GAREC will be held in the "Tampere Hall" convention center. GAREC-2006 is a parallel event to the international Conference on Emergency Communications, ICEC-2006, where representatives of governments, regulatory authorities and relief organizations will review the application and implementation of the "Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations". Holding the two events at the same time allows us, to give a high visibility to the important role of amateur radio in emergency communications. Continuing the work initiated by GAREC-2005, the Conference will consider the latest developments in the application of the amateur radio service to emergency communications, and the cooperation with institutional partners in emergency response and disaster relief. It will also review the progress made on the concepts developed by GAREC-2006 and formulate additional proposals. The GAREC-2006 program is now available at <http://www.rientola.fi/oh3ag/garec/2006, the site where information on last year's conference can be found as well, and on the IARU web at www.iaru.org/emergency>www.iaru.org/emergency. Details of its parallel event, ICEC-2006, are published at <http://www.icec2006.com/>www.icec2006.com.

For the first time in the country's history two amateur radio operators successfully talked to the NASA astronauts, now in the space, with their homegrown system in Bangladesh.

"Your signal is clear to copy and there is another pass over Bangladesh after 90 minutes," Astronaut MacArthur Bill said acknowledging Bangladeshi amateur radio operator Belayet Hossain Robin's call at 8.05 pm on February 18.Robin, whose Amateur radio call sign is S21RB, called CQ CQ MA1SS to contact the astronauts through his radio set. They exchanged some technical information for three minutes and then Anwar Islam, another amateur radio operator of Bangladesh with call sign no S21L, also talked to the astronaut for 1 minute.

United Kingdom telecommunications regulator Ofcom has announced its decision to restructure that nations Amateur Radio service with a lifetime license. That means once someone has passed the test, his license is good until the day that he or she becomes a silent key. Ofcom said it was taking the action to reduce the administrative burden on the UK's 63,000 amateur radio users. Under the new regulations, Ofcom will issue amateur radio licenses which will remain valid for life as long as the license details remain correct or until the license is revoked by Ofcom or surrendered by the licensee. The agency will require licensees to confirm their license details at least once every five years but will also provide an online licensing service as an alternative to the postal service. The regulatory agency will also issue electronic licenses to users of the online licensing service but will continue to make paper licenses available, subject to an administrative charge. In addition to the formal consultation process, Ofcom commissioned a survey of amateur radio license holders' views of the Ofcom proposals.

A history-making communication connection has been made between two satellites. A European and Japanese satellite have made the first bidirectional optical inter-orbit communication in the world. The spacecraft traveled in their respective orbits, with laser beams transmitted and received between the two satellites. The experiment on December 9 involved the European Space Agency's (ESA) Advanced Relay and Technology Mission (ARTEMIS) and the Japan Aerospace Exploration Agency's (JAXA) Optical Inter-orbit Communications Engineering Test Satellite "Kirari" (OICETS). On-orbit laser beam acquisition and tracking technology is a key capability. For instance, the concept enables the collection of data at higher transmission speed and greater volume. Also, onboard communication gear can be smaller and lighter. The experiment is viewed as a major step toward the era of optical communication in space. In spotlighting the success, JAXA compared the test to "hitting the eye of a needle placed on top of the Mt. Fuji from Tokyo Station."

AMSAT-UK is delighted to be able to announce its participation in the SSETI ESEO satellite project. ESEO - The European Student Earth Orbiter is a satellite planned for launch in late 2008 into a Geo-stationary transfer orbit similar to the initial orbit of AO40 and to those planned for Eagle and P3E. In December 2005 two AMSAT-UK members were invited to attend a SSETI Workshop at the European Space Agencies ESTEC facility in the Netherlands.

NASA and its International Space Station partners have announced that astronaut Jeff Williams, KD5TVQ, and cosmonaut Pavel Vinogradov, RV3BS, will be the ISS Expedition 13 crew. According to the ARRL Letter, the pair wuwillm arrive aboard the orbiting outpost in early April to relieve the current crew of ISS Commander Bill McArthur, KC5ACR, and Valery Tokarev. Vinogradov will be the Expedition 13 commander, while Williams, a US Army colonel who's logged one space flight, will serve as ISS flight engineer and NASA ISS science officer.

Brazilian astronaut Marcos Pontes will join Williams and Vinogradov aboard the Russian Soyuz spacecraft that will transport the new crew to the ISS. Vinogradov and Williams will spend six months on the station, while Pontes will spend eight days conducting research under a commercial agreement between the Brazilian Space Agency and the Russian Federal Space Agency. Brazilian telecommunications authorities have granted Pontes the call sign PY0AEB for use on his space journey, and there are plans for him to do Amateur Radio on the International Space Station school group contacts during his mission. He will return to Earth in April with McArthur and Tokarev, who have been in orbit since last October.

AT6MM

It was a unique operation of a special event station from Sravanabelagola, in Hassan District of Karnataka, about 140 km from Bangalore. It was for the first time ever, that, this sort of an operation of an amateur radio station, was happening during the millennium's first ever "Mahamastakabhishekha" of Lord Bahubali. He was a prince extra-ordinary, who fought his brother Bharatha, for the kingdom. It was very unique and strange that he got dejected and renounced everything and the Kingdom he won in the battle, in favour of the one who lost the battle. Later on, he took to meditation and penance. His most important teachings are: "Peace Through Renunciation; Happiness Through Non-Violence; Progress Through Friendship; Achievement Through Meditation"

The special event station was granted the requested call sign "AT6MM", where "6" was indicating year 2006 and "MM" for Mahamastakabhishekha. The station was permitted to operate from 22nd January to 25th February 2006. Sri Sri Charukeerthi Bhattaraka Swamiji was kind enough to help the station get located in the Bahubali College of Engineering and Bahubali Polytechnic. The two stations were operated in rotation and at times simultaneously on different bands. CW was the preferred mode, but SSB and VOIP- Echo link were also used. The equipments used were Yaesu FT 757 GX, FT-840, with their SMPS and Heavy Duty power supplies, FC 700 ATU. The antennas were simple inverted Vees from 80 to 10 m, but most of the operations were on 40,20,17,15 metre bands.

There was a general invitation to regular Dxers of West Bengal, Maharashtra, Andhra Pradesh, New Delhi, Tamil Nadu and Kerala, and others too, to join us in time for the special event. But, the response was surprisingly dismal. Over 2.2 K QSOs to over 108 countries of all the continents including Antarctica were achieved using about 35 to 45 watts. The station did take part in ARRL International CW contest with 50 watts and the "Multi Operator One" CW Entry has been accepted by ARRL contest robot.

The group which fruitfully completed the special event operation, consisted mainly of OM Ajoy VU2JHM, Laxman VU2LX, Arasu VU2UR, and Basappa VU2NXM . The many regular QSOs with Sri Lankan operators like Dr Nihal 4S7WN and many VUs, when the 40 metre band, was yet to open its erratic propagation, is very much appreciated.

Most of those who contacted AT6MM were told to visit the web page in QRZ.Com where the QSL and other information about Bahubali were given with links to the other important sites which gave latest pictorial information of the daily activities at Sravanabelagola. It was very heartening to hear a Russian operator UA3AGW, telling us about Bahubali and enquiring about the other details. On the whole is was a rewarding experience.

AT3ANT

The Italians take a lot of interest in all DX activity, like chasing DX for DXCC, chasing Islands for IOTA Honour roll and they have a special interest in encouraging specialised activities like activities in Antarctica. Among the groups who have taken this very seriously are the Diamond DX Club and Mediterrano DX Club. Both have awards of achievements. The Worldwide Antarctic Programme (WAP) was conceived by OM Gianni Varetto I1HYW and OM Massimo Balsamo IK1GPG in 1979.

The Antarctic Activity Week which is celebrated from 20th February to 26th February every year, started in the year 2004 and this year 2006, saw many stations from Italy, France, Russia and other countries were operating with special call signs with suffix " ANT" with some special prefixes also. This is the first time an Indian station with a specail call "AT3ANT" was operational in the period 20th to 26th february 2006. The operator was none other than OM Arasu VU2UR, who holds WAP-WACA and WADA awards for the Antarctic areas, from DDXC.

These special event AAW stations have been identified by the WAP programme with special Identification numbers of two digits like WAP-xx. AT3ANT was issued the number WAP-21. For the WAP Awards, valid QSOs with these special event stations also count. Over 800 QSOs were netted in the week, from all continents.

A colourful QSL card is generally sent to all who contacted these special event stations. A sample of the QSL card of AT3ANT is shown below which was specially designed for AT3ANT by OM Gianni Varetto I1HYW. The Maitri Base station of India, is shown in the right hand bottom corner and the centre shows the Antarctican continent.

AT0EI

Elephanta Island off the coast of Mumbai is a famous tourist spot which is home to ancient Shaivite caves. On one side of the island are the caves and restaurants and shops, but on the other side rests a quiet village. The island has no electricity and has a calm and quietness about it, which is in sharp contrast to the very noisy and hectic nature of the mainland. It is to this village that a small group of hams and swls headed for on the morning of the 10th of February 2006. The group consisted of VU2NXM, OM Basappa, VU2SWS, YL Sarla, VU2NKS, OM Nandu, VU2IZO, OM Mickey, VU2 IES, Santosh Vedante and a few SWLs. The group boarded a small fishing boat from the coast of Uran and after a short ride, landed on the jetty of the village.

Since it was the 3rd visit of the group at the village, we were welcomed by the village headman, Mr Phadte, who as usual was gracious enough to allow us to use the top storey of his house as the base for the group. Immediately the group started to erect simple dipoles and by 3 p.m, the station was ready to go. One shout on 15 metres had a whole lot of dxers clamouring for a qso. VU2SWS, YL Sarla, worked . in rapid fire speed and covered most of Europe and many stations from the USA. Band conditions were good for a few hours after which it was time to work 20 metres. VU2NKS, OM Nandu did the honours before the band totally closed down. Since the island had no electricity, the team worked on batteries and a generator.

Day 2 was not a great day for propogation and as luck would have it, the generator collapsed. With the result the group had to make do with whatever power was left in the batteries. Since the afternoon saw no activities on the band, the group went for a sightseeing tour of the island. It was like going on a long trek and by the time the group returned to the base, the band was alive again. There was plenty of action on the 15, 20 and 40 metre bands with qsos

(Continued on page no. 8)

VU2IIT,HAM club station of IIT **Kanpur** played an active part and hosted various events during "Techkriti ", the annual Science and Technology festival of the institute, held from 23rd-26th February 2006. More than 100 students and budding engineers from all over the country participated in various activities of the club. Power Point presentations on "HAM Radio : Space Age Hobby" and " Evolution of Wireless technology" were made by VU3BGI Jyoti Chakravarty from Kolkotta and VU3WJM Rahul Srivastava from Lucknow. A Fox hunt was conducted in which more than 60 students participated. A workshop on modification of a commercial receiver to HAM Bands was held and contact was established by having qsos with stations worldwide. The Star attraction was a presentation of the first VU homebrewed SDR (Software defined Radio) By VU3WJM. Media, faculty and participants highly appreciated the development of this cutting edge technology. Apart from these there were many other events related to Robotics, Aero modeling, circuit design, quizzes etc. All confirmed QSOs with VU2IIT would be issued a commemorative QSL card.

The **Quilon** Amateur Radio League is conducting 10th the Kerala VHF Fox Hunt this year at Cochin on Sunday, the 16th April, 2006. Winners will be awarded VU2CSD memorial rolling shields in additions to other prizes and cash awards of Rs.1000/-, Rs.500/- and Rs.250/-.For more details contact P.Surendran, VU2SYT, Secretary, QARL,Ph No.0474-2552749.

A lecture / DEMO / Presentation on HAM RADIO was organised at Council of Science & Technology (UPCST), **Lucknow** on 28th Feb 2006 on the occasion of NATIONAL SCIENCE DAY. Approx. 150 students & teachers from various Schools along with some dignitaries were present at that time. Many students, teachers and media persons showed their interest in Ham Radio. The HAL Scouts Group Amateur Radio club (VU2LKO) is going to organise the preparatory class for the benefit of such aspirants who are interested in this hobby. The class will be conducted at the Club (Scout Bhawan) , every Sunday. The **Fiesta** 2006 was organised at Integral University, Lucknow on the 10th & 11th March 2006. On the inaugural day a Presentation on HAM RADIO was heldat University auditorium. OM Rahul, VU3WJM delivered a lecture and gave a presentation for students. After Lunch, a FOX HUNT was organised in which more than 60 students participated.Due to rain, the eventcould not be completed. Most of students were very crazy about Ham Radio.

The fourth **Mahabalipuram** Eye Ball meet was held on the 11th of Feb'06 at Jawaharlal Nehru Rest House. 60 Hams and SWLs from various parts of Tamilnadu, Kerala Karnataka and Andhra Pradesh participated. Apart from the usual self introduction and bonhomie show and tell events took place with VU2ASB OM Ashok Kumar Reddy, exhibiting his miniature model of his co linear 2 metre ant costing just Rs 50/=. VU2GHB OM Hari demonstrated his antenna tuner cum electronic swr bridge, homebrewed 7 MHz transceiver with voice processing and other utilities for the Ham shack. VU2VSD OM Sundar, veteran homebrewer, dxer and retired radio officer of Merchant Navy proposed the vote of thanks. It is already known that the special feature of this annual event is, no fee is collected and everyone takes care of himself for their food lodging etc.

A meeting of the hams in **Delhi** was held on March 5, 2006 which was organised by Vigyan Prasar (Deptt. Of Science & Technology). A one minute condolence was observed in respectful memory of Late Sri Ram, VU2SK (Ex-VU2TDZ), who was one of the founder members of VU2NCT club station and the VU2DLR VHF repeater station of Vigyan Prasar in New Delhi.Dr. V.P. Sandlas, VU2VP (retired Senior Scientist with the Defence Research Development Organisation) presided over the meeting. He emphasized organized effort in bringing ham radio to prominence by coordinating with various governmental bodies, specially in terms of developing an appreciative attitude towards the hobby. He also apprised the participants about the appreciation of hams by our President APJ Abul Kalam in one of his speeches during the Inauguration of the General Assembly of International Union of Radio Science (URSI). Shri Gopal Madhavan, VU2GMN (Chennai), the new President of Amateur Radio Society of India (ARSI) was felicitated by the hams in Delhi. Shri Madhavan apprised the participants about the newinitiatives taken by ARSI. He said that the effort to bring about changes in the outdated rules under which we the hams in India are presently governed would be getting a priority. OM Madhavan delivered a presentation on the 'Winlink 2000'(WL2K) HF E-mail system. He emphasized setting up of more Winlink 2000 PMBOs in our country to facilitate emergency communication. VU2GMN runs a WINLINK 2000 PMBO(Participating Mail Box Office) from Chennai, India. Winlink 2000 enables a ham to send e-mails without Internet connection via the PMBO stations. It also enables automatic position reporting of boats/vehicles from locations which don't have access to the conventional modes of communication like Internet. Dr. V.B. Kamble, VU2VBK (Director, Vigyan Prasar & Adviser/Scientist-G, Deptt. of Science & Technology) apprised the participants about the upgradation of VU2NCT club station for Satellite Communication. OM Sunil U.K. (VU2UKR) gave a presentation on his innovative project(EchoRobot) involving a software and hardware for use ith'Echolink'(http://www.echolink.org). EchoRobot is a supporting interface, basically a hardware with a software for checking the computer serial ports for the layman, which enables the user to have handsfree operation of Echolink in the Single-User mode.(more info at: http://CQIndia.com/vu2ukr/HandsFree/Echolink.htm).

EchoRobot allows working multiple applications under windows while Echolink is kept minimized and still be able to make a 'QSO' without toggling the spacebar. Call-signs of the hams attending the meeting: VU2VBK, VU2VP, VU2GMN, VU2ATN, VU2LO, VU2MB, VU2XD, VU2OB, U2UKR,U2BDX,VU2KD,VU2RTV,VU3GTF,VU2BSB,VU3DJQ, VU3FUN,VU3RDZ,VU2PSQ,VU2JIO,VU2OEC,VU3RJH,VU3BPA,VU2SLJ,VU2LAS,VU3CRN,VU2BJM,VU3CAV, VU3PPQ, VU2MUE.A few engineering students from the JIT, Noida also attended the meeting and expressed their desire to establish a ham radio club station in the Institute. Physics teachers from Delhi Police Public SChool also attended the meeting and expressed their interest in introducing the hobby to their school children.

A public meeting was organized by some licensed HAMs

along with SWLs and Radio enthusiasts to form an amateur radio society to promote the activities of HAM Radio at **Guwahati** on 25th December 2005 at ICFAI National College, Silpukhuri,Guwahati-3 The said meeting was attended by people from different walks of life including students of the college who decided to name the society as "Amateur Radio Society of Assam (ARSA)" and nominated Mr.Ranjit Chaliha,VU2RCH, a very senior HAM from Nagaon as its Chairman.The meeting was presided by Mr.Chaliha and attended by HAMs such as Debajit Sarma,VU2DBM,Asst.Director,EarthStation,STPI,Guwahati, Rudra Prasad Sarma,VU2PTF,Mrs.Bijoya Chalia,VU3BCH and other Short Wave Listeners and a few other Radio Enthusiasts.The meeting dealt in depth the role of HAMS in times of Disasters such as earthquakes, floods, cyclones, tsunami etc and urged the people in general to take up this noble and fulfilling hobby. The gathering expressed the hope that the Society would be able to popularize this hobby amongst the common people who would be able to help the administration in times of natural calamities. The meeting nominated the other office bearers with the Chairman of the Society with effect from 25th December'2005 as follows--Dr A. K. Bhagabati, Head of Dept. of Geography, GauhatiUniversity & working president of Assam Science Society-Adviser Mr. Anong Perme,VU2ARJ---Adviser, Mr. Nongkong Perme,VU2HQY--AdviserMr.Sandeep Baruah ,VU2MUE--- Co-ordinator ,Mr. Ranjit Chaliha, VU2RCH---Chairman, Mr.P.Saikia,Addl. S.P.(C),APRO-- Vice Chairman, Mr.D.K.Das, SWLSecretary,Mr.Debajit Sarma,VU2DBM & Mr. Rudra Prasad Sarma,VU2PTF--Jt.Secretaries. Mr.Bhagaban Barman, SWL---Treasurer, And eleven other executive members including 4 student members.

A field day was organized by the **Thane** Amateur Radio Society on the 8th of Jan 2006, at Yeour, Thane . It was well attended by all members of this new club, which has about 60 members awaiting their licences. The first thing which the group did on reaching the venue was erect the dipoles which were measured and cut on the spot. The antennae for the 20 and 40 metre bands were strung on to bamboos salvaged from the area. The SWLs listened to stations from Africa, India and Europe. Digital modes were also experimented with. VU2GT, OM George, was the guest for the day and he lectured and explained about antennae, explaining about them in the simplest possible manner, making it very interesting for all. As usual OM Mickey, VU2IZO excelled in the organisation!!!And all participants had a great time.

Hams of **Andhra Pradesh** played a major role in Kalachakra 2006, held from 05th to 16th January 2006 at AMARAVATHI (Guntur District.) by helping District Administration in Communication. Nearly 70,000/- PILGRIMS (BUDDISTS) of different Countries in World like America Japan, Korea etc., and Local people from Andhra Pradesh had participated in this event getting the blessings of his holiness Sri DALAI LAMA. The hams assisted the administration in providing communication in ambulances and fire engines and in uniting lost people with their families. 11 Base Stations & 7 Mobiles including one in District Collector and Joint Collector's Vehicles were established. A main station was established at the Central Protocol Cell, where a report was taken from all the stations regarding Raw Water, Drinking Water, Sanitation Works, Electrical Works and any other requirements. A special cover was released by the Chief Minister of Andhra Pradesh for this event,in which the Governor of Andhra Pradesh was also present. All were blessed by his Holiness, the Dalai Lama. The participants in this event were OM Sankara Rao-VU2 HVR,Director Centre for Disaster Management Hyderabad, OM Prasad- VU2 ICC, Secretary Guntur HAM Club, OM Ramesh-VU2 RDM,Secretary Vijayawada HAM Club, YL Rajitha-VU2 UIC,Secretary Kamam HAM Club, OM Ramesh-VU3 RMB,Secretary East Godavari Kakinada OM Srinivas Rao-VU2 CHS,Secretary West Godavari Rajamendary, OM Rushi-VU2 RPL,Joint Secretary Nellore HAM Club, OM Sarath-VU3WJN, Joint Secretary Srikakolam, OM Purushtham-VU3 UTM,Joint Secretary Machlipatnam OM Venkat-VU2 VLU, Joint Secretary Vizag, OM K.Hanumantha Rao-VU3 HRL,ARSI Co-ordinator Guntur, OM Umamaheswara Reddy-VU3 ONH, OM Rama Krishna-VU3 NYD, OM Lakshmi Kanth-VU3KBT, OM S.Prakash Reddy SW, OM Sri Kishore-SWL, SWLKamama, OM Srinivas-SWL.

One day workshop on Disaster Management for College/University teachers was organized at New College of Arts,Commerce & Science,**Ahmednagar**, on 11th March 2006. The focus of the workshop was "Role of Amateur Radio in Disaster Management". A lecture on Introduction to Disaster Management and Ham Radio (including demo on VHF) was given by OM Datta Devgaonkar, VU2DSI. A PowerPoint Presentation was done on Role of Amateur Radio in Tsunami by OM Sarath Babu,VU3RSB. The audience watched a screening of video footage of Tsunami struck in South India; a documentary on Earthquake prepared by Films Division of India; & "Disaster Preparedness" documentary prepared by Central Govt. A PowerPoint Presentation on Digital Communication by OM Prashant Koli, VU2CBU, was followed by a demonstration of Ham Radio. The event was attended by 35 college/university lecturers, including 4 from Assam; 5 SWLs & a ham from Nasik.

The Hambel Amateur Radio Club,**Belgaum** celebrated its Silver Jubilee on 8th November 2005 in Hotel Ramdeo. Hams who were present along with their XYLs and Harmonics were Ashok VU2ACK, Vijaya VU2EXY, Manju VU2SMS, Om Prakash VU2KOC, Bebu VU2PNU, Mohan VU2MRM, Pal VU2PAL, Jayant VU2JBP, Gaddi VU2CKR, Dalpat VU2DLP, and Bharat, Santosh(SWLs). On this occasion, VU2PAL, Prof. M.A.Hipparagi and VU2JBP, Shri Jayant Patil were felicitated for their dedicated servide to the Hamworld. OM Pal was praised by all for his dedicated and untiring service to the ham fraternity in conducting the Hambel Belgaum net efficiently and regularly on time. Both had contributed immensely in helping other hams on air.

(Special Events continued from page no. 6)

with the rest of the world as also India. A total of 600 qso were made on CW and SSB.

The SWLs who were with the group had a great hands down experience of hamradio operation . With the help of the licenced hams, they had qsos with others on the band, which for them was a great feeling. The group learnt how to fend for themselves as each person had to make their own food from the provisions carried along. With endless cups of tea and coffee, there was a general feeling of camaradie.

It was with a sad heart that the group packed to leave on the 12th, as all sources of power were depleted. But it was a lesson in preparation for expeditions for everyone. The equipments used were Yaesu FT 840 and ICOM 706, with dipole antennas. The group will no doubt make many more expeditions like this one.

Direct Digital Synthesizer VFO By C.V.Niras/VU3CNS

This is a continuation of my previous DDS projects. This project uses PIC16F628A and AD9850 or AD9851. PIC16F628A is an 18-Pin microcontroller with 2K byte program memory, it is a FLASH-based and a member of the versatile PIC16F62XA family of low-cost, high-performance, CMOS, fully-static, 8-bit microcontrollers. PIC16F62XA devices have special features to reduce external components, thus reducing system cost, enhancing system reliability and reducing power consumption.

Features : 1. Range 0 to 70 MHz by 1 Hz step. 2.Freq setting in 1, 10, 100Hz, 1, 10, 100KHz, 1, 10 MHz by using a low cost mechanical encoder with a variable tuning rate. 3. 2 rows X 16 character LCD display. 4. A 4 x 3 Keypad used for easy freq entry. 5.IF, CW, SSB offsets settings when used with Transceiver/ Receiver. 6.Software calibration to WWV or equivalent. 7.Two VFOs and split freq operation. 8.19 user memories, memories freq + mode (i.e. LSB/USB etc.)
9.All settings are held in EEPROM and are permanent (but user can change it any time). 10. 4 Band selection and 4 Mode selection outputs. 11. When operating below IF frequency, clockwise rotation of rotary encoder decreases DDS out put frequency but increases the display frequency. 12.RIT operation.

DDS : The AD9851 is a highly integrated device that uses advanced DDS technology to form a digitally programmable frequency synthesizer. AD9851 generates a stable frequency and phase-programmable digitized analogue output sine wave. This sine wave can be used directly as frequency source with an output tuning resolution of approximately 0.04 Hz with a 180 MHz system clock. The AD9851 contains 6 X REFCLK Multiplier circuits that eliminate the need for a high speed reference oscillator.

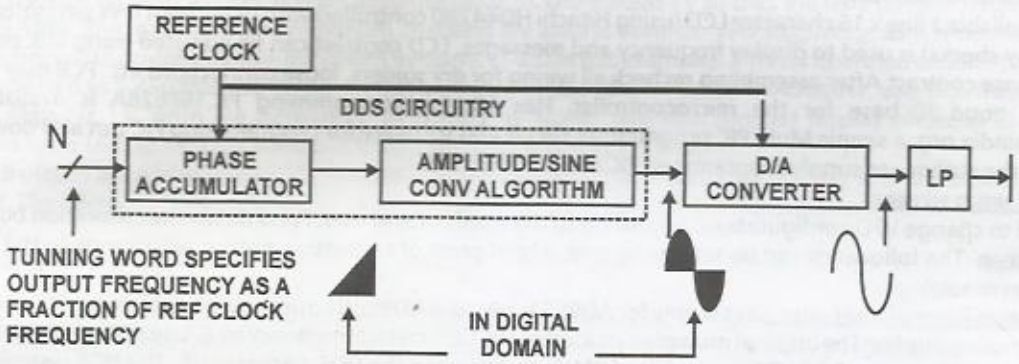


Fig. 1 Basic DDS Block Diagram

The basic block diagram is shown in Figure 1. The frequency out put can be calculated using the following formulae
Fout = (? Phase X System Clock)/ 2 ^ 32 Where: ? Phase = decimal value of 32 bit tuning word System Clock = REFCLK frequency in MHz or 6 X REFCLK frequency (in MHz) if the 6 X REFCLK Multiplier is enabled Fout = Output frequency of DDS in MHz
The DDS circuitry is basically a digital frequency divider function whose incremental resolution is determined by the frequency of the system clock, and N (number of bits in the tuning word). The phase accumulator is a variable-modulus counter that increments the number stored in it each time it receives a clock pulse. When the counter reaches full-scale it wraps around, making the phase accumulator's output phase-continuous. The frequency tuning word sets the modulus of the counter, which effectively determines the size of the increment (?Phase) that will be added to the value in the phase accumulator on the next clock pulse. The larger the added increment, the faster the accumulator wraps around, which results in a higher output frequency.

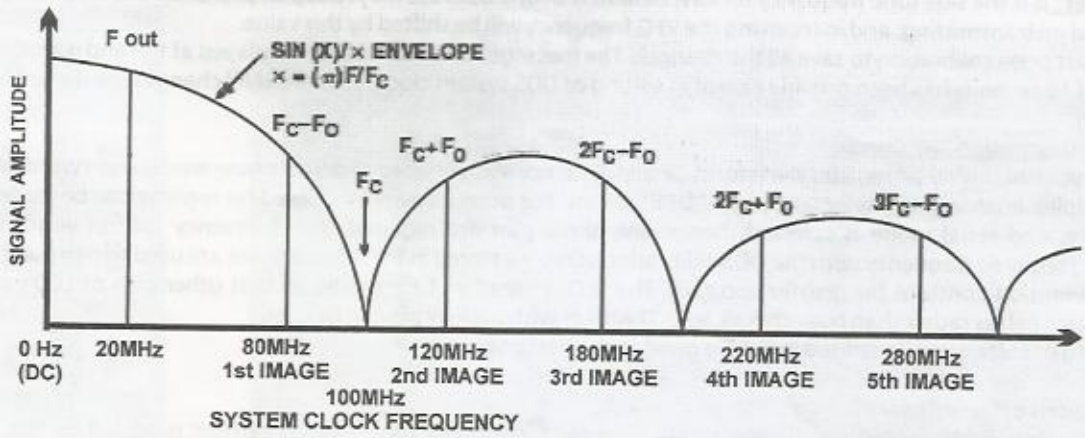
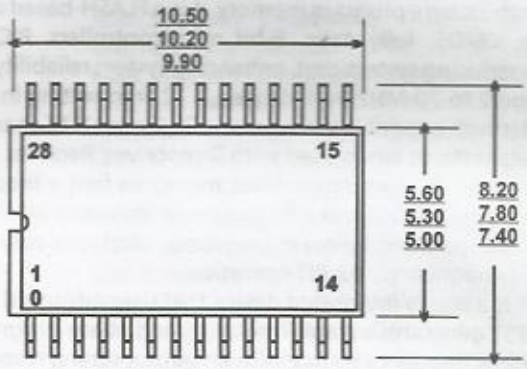


Fig. 2 Output Spectrum of DDS

In the example shown in Figure 2, the system clock is 100 MHz and the output frequency set to 20 MHz. A low pass filter is essential to remove unwanted images. A good rule-of-thumb is limiting the output frequency to 1/3rd of System Clock frequency. One can use the other images also with help of a good band pass filter. Note that these images are not harmonics and it keeps a 1:1

relation with the fundamental frequency, i.e. if fundamental frequency increased 1 Hz then the image frequency also shifted 1 Hz.

Construction notes. The most difficult task is soldering AD9851 in the PCB. AD9850 or AD9851 is in SSOP package with 28 pins as shown in Fig3. Use a magnifying glass and a point soldering iron to the job neatly.



28-Lead Shrink Small Outline Package (SSOP)
(RS-28)
Dimensions shown in millimeters

Fig. 3 Dimensions of AD9851BRS

A Commonly available 2 line x 16 character LCD (using Hitachi HD44780 controller) with or without R/W pin (software uses delays rather than busy checks) is used to display frequency and messages. LCD contrast can be adjusted using 10K pot, turn towards ground to increase contrast.After assembling recheck all wiring for dry solders, loose connections etc. PCB may be cleaned with isopropyl. Use good IC base for the microcontroller. Hex file for programming PIC16F628A is available on website www.hamradioindia.org, a simple Multi PIC programmer circuit and software for programming PIC can also download from the site. If required the author can supply programmed PIC at a nominal rate.

Calibration and setup screens

This is provided to change VFO configurations according to the needs of end user. Press down the calibration button on start-up to enter this screen. The followings can be set one by one; a brief press of calibration button will change to the next, and finally saves all changes or settings.

1. Enable or disable internal multiplier : This is only for AD9851, because AD9850 hasn't any internal multiplier, for AD9850 always disable the internal multiplier. The internal multiplier multiplies the DDS crystal frequency by 6. Use rotary encoder for selection.

2. DDS system clock :It sets the DDS VFO to produce 10MHz and displays the DDS system clock. The DDS system clock should be set to the DDS crystal frequency, for the AD9850 or AD9851 with internal multiplier disabled, and 6 times of DDS crystal frequency for AD9851 with the internal multiplier enabled. Use keypad or rotary encoder to make changes until the VFO output is exactly 10MHz. This is required because in most cases the DDS crystal oscillates at a frequency slightly differed from its printed value.

3. Max DDS frequency : It is the high limit of the DDS output frequency; maximum limit is 1/3rd of DDS system clock or cut of frequency of the band pass filter. The software doesn't allow going beyond this limit, but keeps in mind that SSB or CW offset will be added after checking this limit.

4. Minimum DDS frequency : As the maximum limit, this is the minimum limit of DDS frequency. Here negative values can be set, only recommended for when it is necessary to get a frequency less than display offset frequency (see functional description for more details).

5. SSB offset : It is the sideband shift, usually set to a half of the SSB crystal filter. Negative values are also valid; a negative offset simply changes the meaning of LSB and USB.

6. CW offset : It is the side tone frequency for CW; default is 800Hz because most peoples preferred this frequency. The CW offset will not add on transmitting, and in receiving the VFO frequency will be shifted by this value.

All done, just press calibration to save all the changes. The message "SAVING" will be displayed at the end if anything changed. A time out of 10 seconds has been provide except in setting of DDS system clock, in timeout all changes are discarded and return to VFO screen.

Functional Description

The DDS chip contains 40 bit register that stores 32 bit frequency control word and 5 bit phase modulation word and 6 x reference clock multiplier enable (not implemented on AD9850), and the power down function. This register can be loaded in parallel or serial mode, and serial mode is selected, hence only three pins are required. The frequency control word is calculated by multiplying required frequency with the DDS calibration constant stored in EEPROM. 3 bytes are used to represent decimal values of DDS calibration constant for greater accuracy. The LCD is wired in 4 bit mode, so that other pins of LCD's are left unused. Software uses delays rather than busy checks, so LCD with or without R/W pin can be used.

The working of software is illustrated in the Fig given in the next page

Fig. 4 functions of the software

VFO frequency is incremented on turning rotary encoder turning clockwise. Display offset is added to this frequency and displayed. Display offset is removed from the value entered through the keypad. The software allows negative values in RX minimum frequency; this required only when it is needed to operate VFO below the "display offset" frequency. At this time, the clockwise rotation of rotary encoder decrements DDS output frequency while incrementing displayed frequency. For example, let the IF frequency be 9 MHz and need to operate on 40M band as lower side injection. So the VFO frequency should be 1.9 to 2.0 MHz. Set the display offset as 9MHz in the calibration screen. While entering 7MHz through keypad, it removes display offset, and

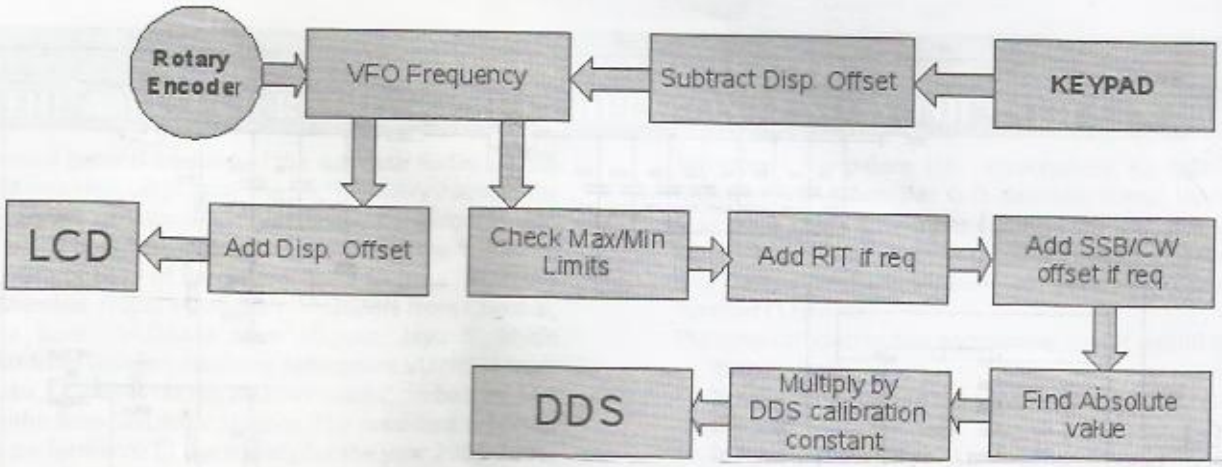


Fig. 4 functions of the software

the result, i.e. VFO frequency is 2MHz. Before sending to LCD, the display offset, i.e. 9MHz is added so - 2 + 9.0 = 7.0 is displayed. While turning rotary encoder clock wise, it incremented towards -1.9, so the display frequency is incremented from 7 to 7.1 (-1.9 + 9 = 7.1), but before sending to DDS, it finds absolute value of VFO frequency so that the DDS out put frequency is decreased from 2.0 to 1.9 MHz. The maximum and minimum checking are always done on VFO frequency, so it is necessary to set the RX minimum frequency at the most possible minimum frequency (-2.0 in this example). If this is operated on 20M band, then the VFO frequency should be 5 to 5.450 MHz, so displayed frequency is increases from 14.0 to 14.450MHz, also DDS frequency is increases from 5.0 to 5.450MHz, i.e. both are increasing. To operate as higher side injection; set display offset as -9.0MHz, now DDS frequency varies from 16.0 to 16.1 for 40M, and from 23.0 to 23.450MHz for 20M.

RIT and CW/SSB offsets are added if the corresponding modes are active. RIT displays separately with sign, it will not be discarded until power off. The microcontroller memorises modes, frequency etc, and started in the previous state on power up.

Operational use

On power up the software version number is displayed for a short time. The second digit after decimal point will be 6 if the internal multiplier of AD9851 enabled else it will be 1.

For ease of operation Keypad, rotary encoder and other six buttons are provided. The "* "key represent the decimal point and "# "used to "enter" the value. For an example; to enter 7.5 MHz, first press 7, the "* "key then 5 followed by "#" the "Enter key ". The frequency will be displayed as "7.500000 MHz". When pressing any key in the keypad the same will be displayed in the LCD and the "MHz" text in the LCD has been change to "#" as a reminder to "#" key must be used after the frequency typed in. Press "#" key first to enter a negative value, only allowed in some setup/calibration screens.

Some push buttons have two functions, indicated below on each buttons. To access these function press down the key for 1 second.

Turn the rotary encoder clockwise increases the frequency and anti-clockwise decreases it. While pressing down the STEP button a cursor is displayed under one digit. This indicates the selected step size, and to change, turns the rotary encoder while pressing down the STEP button. The software also monitor how fast you turn the knob, if you turn fast the frequency will be increasing a value higher than 1 and up to 30. Due to the software takes 4mS to de-bounce the encode position; if turn so fast then no change will occur.

Any changes in the frequency will write into the EEPROM two seconds after stopping the rotary encoder or entering frequency by Keypad. On power up last the frequency stored in the EEPROM will be displayed.

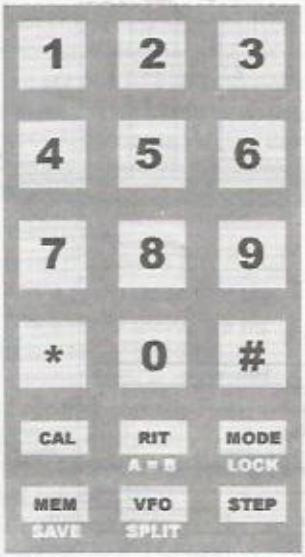
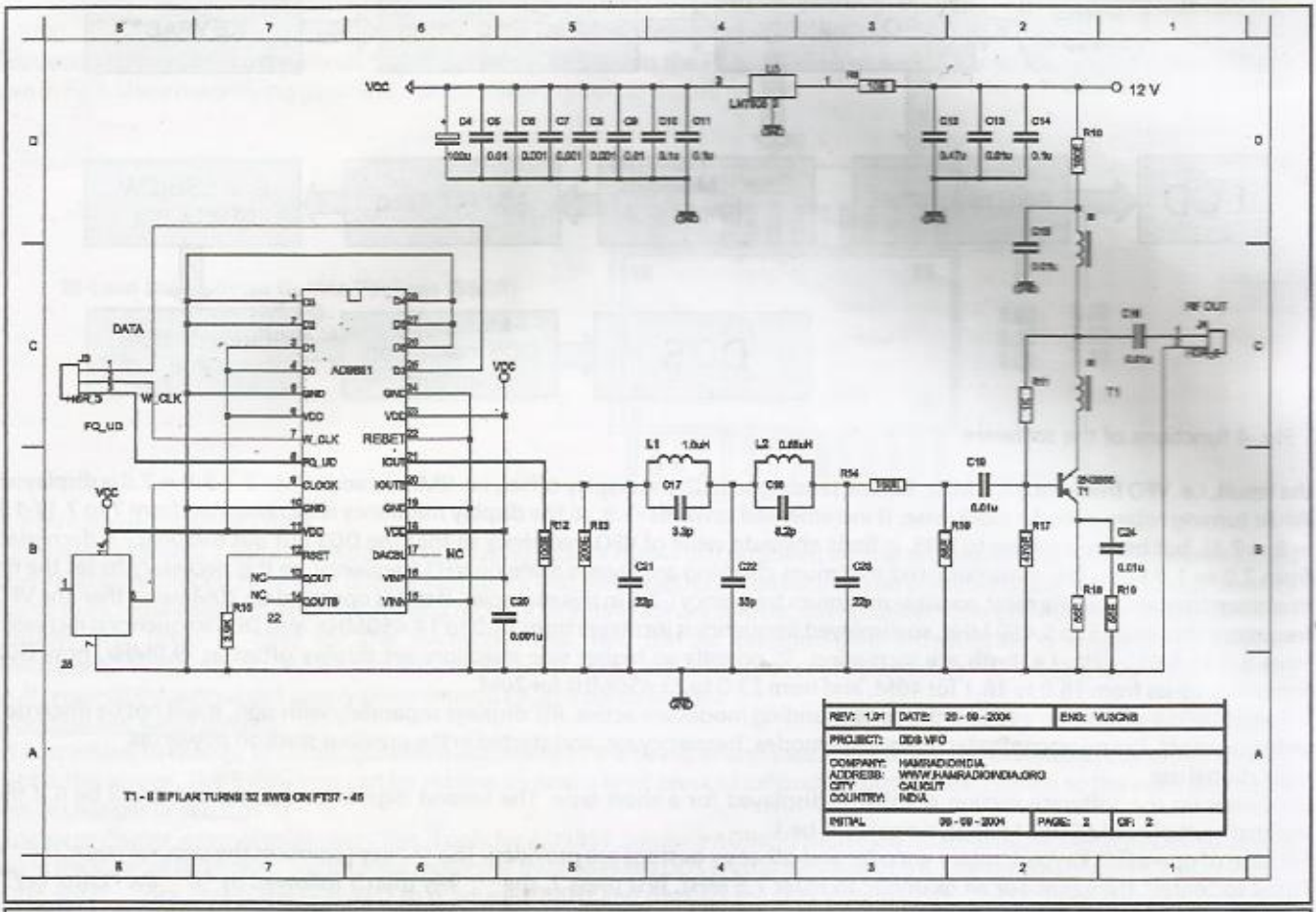
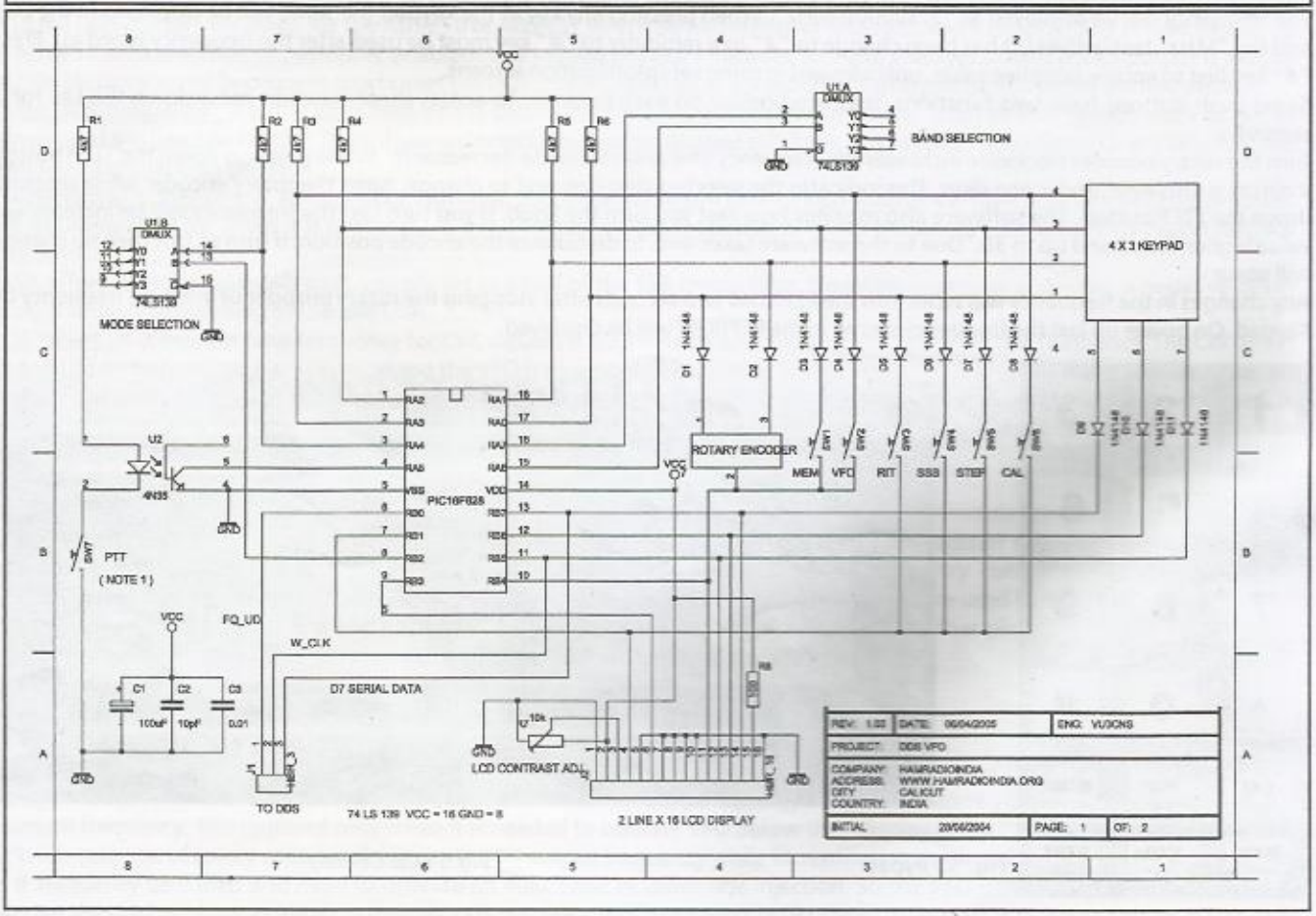


Fig. 5 Keypad

Fig.6 LCD Display


VCC
12 V
LM7805
DATA
W_CLK
FQ_UD
AD9851
RESET
L1 1.0uH
L2 0.68uH
C17 3.3p
C18 8.2p
C21 33p
C22 33p
C23 22p
T1
RF OUT
T1 - 8 BIFILAR TURNS 32 SWG ON FT37 - 43
REV: 1.01
DATE: 29 - 09 - 2004
ENG: VU3CNS
PROJECT: DDS VFO
COMPANY: HAMRADIOINDIA
ADDRESS: WWW.HAMRADIOINDIA.ORG
CITY: CALICUT
COUNTRY: INDIA
INITIAL
29 - 09 - 2004
PAGE: 2
OF: 2


VCC
U1.A
74LS139
BAND SELECTION
U1.B
MODE SELECTION
4 X 3 KEYPAD
PIC16F628
ROTARY ENCODER
MEM
VFO
RIT
SSB
STEP
CAL
U2
4N35
PTT
(NOTE 1)
FQ_UD
W_CLK
D7 SERIAL DATA
LCD CONTRAST ADJ
TO DDS
74 LS 139 VCC = 16 GND = 8
2 LINE X 16 LCD DISPLAY
REV: 1.02
DATE: 06/04/2005
ENG: VU3CNS
PROJECT: DDS VFO
COMPANY: HAMRADIOINDIA
ADDRESS: WWW.HAMRADIOINDIA.ORG
CITY: CALICUT
COUNTRY: INDIA
INITIAL
20/04/2004
PAGE: 1
OF: 2

MINUTES OF THE AGM OF THE AMATEUR RADIO SOCIETY HELD ON SUNDAY THE 15TH JAN 2006

The Annual general meeting of the Amateur Radio Society of India was Held on Sunday the 15th January 2006,at the Rotary House of Learning, Coles Road, Bangalore.It was attended by members in Bangalore and also the following hams from outside of Bangalore. Sarla Sharma VU2SWS from Mumbai, Gopal Madhavan VU2GMN from Chennai, Ananda Bose VU2AMB from Nagpur, Jayu S. Bhide VU2JAU from Gwalior, Harihara Subramani VU2HSM from Alapuzha, D. Vidya Prakash VU2DVP from Coimbatore, Mrs Nabanitha Bose SWL from Nagpur, The president reported on the performance of the society for the year 2005-2006. The financial report for the same year was also read out. A primary budget for the year 2005-2006 was also presented to the delegates.

The following members were declared elected after the scrutiny of nominations.Mr. Gopal Madhavan, VU2GMN as president (Chennai)Mrs. Sarla Sharma, VU2SWS as Vice-President (Mumbai)Mr. Rajaram K.N., VU2KKZ as Hony. Secretary (Bangalore)Mr. Ramchandra R., VU2RCR as treasurer (Bangalore)Mr. G.G. Rajendra Kumar, VU2ZAP as governing council member (Bangalore)Mr. A.R. Pratap Kumar, VU2POP as governing council member (Bangalore)Dr. Gajapathy Rao, VU2GJR as governing committee member (Chennai)

The new committee has announced that it would take as its main tasks :

- To raise funds to hire the services of a paid secretary for the society
- To fund and purchase its own office space in Bangalore
- To run professionally a QSL bureau at its office
- To take up matters of common interest with the WPC wing of the Min. of Communications
- To Organise competitions and contests, as per standards accepted internationally
- To have a better Liaison with the IARU Region III Secretariat.

(Home brew continued from page no.12)

Managing two VFOs

A VFO button is used to swaps over two VFOs, i.e. VFO A and VFO B. Both frequency and modes (i.e. AM/CW/LSB/USB) associated with the VFO are swapped over with a brief press of VFO button. "VFOA" or "VFOB" is displayed in the LCD.

A = B function will copy the current VFO frequency to the other. A lock has been provided in the software for both keypad and rotary encoder.

Split : Press down VFO button for 1 second will activate SPLIT mode. In this mode VFO will change from one to another on pressing the PTT and backs when releasing it. A "=>" will be displayed on LCD to indicate SPLIT mode.

RIT : If the RIT button is pressed briefly, RIT frequency is displayed on the LCD and activate RIT mode. RIT frequency can be changed as long as it does not cross the limits i.e. +/- 3KHz. Pressing the RIT button again, removes the RIT frequency display and the deactivates RIT.

AM/CW/LSB/USB : Pressing SSB button briefly change the mode one by one. AM, CW, LSB, USB can be selecting by using this. In CW mode CW offset will be added if the VFO in the RX mode and no offset will be add if the VFO in TX mode. In LSB mode SSB offset subtract from the output frequency and add in USB mode. The negative offset just changes the meaning of LSB and USB (see calibration and setup screens for more details). The CW, LSB, or USB displayed on LCD if anyone of these modes is selected.

Memory mode : Memory function has been used to save and recall RX frequencies to EEPROM. Maximum 19 numbers of frequencies can be saved along with the mode. A brief press of memory button will change from VFO mode to Memory mode and backs. On pressing memory button last operated memory channel will be displayed, and can select the desired memory with the rotary encoder. If the memory frequency is invalid a "---"will be displayed instead of MEM in the LCD. This happens when change something in setup screens and try to recall old memory locations. For example if set maximum RX frequency to 30MHz and select a memory locations stored 40MHz. To save a VFO frequency in to memory, press MEM buttons for 1 sec, then select memory location using rotary encoder. To avoid erasing any useful frequency the frequency in that location will be displayed on the second line of LCD. Press MEM button after selecting the desired location for 1 sec. A message "SAVE" will be displayed on LCD. If didn't like to overwrite the previous memory Frequencies then a brief press of MEM button helps to back to VFO mode.

There are two methods to go back VFO mode from memory mode. A brief press change to VFO mode and recall the previous VFO frequency. If MEM button is pressed for 1 second then the memory frequency will be copied to VFO and change to VFO mode.

Acknowledgments.VU2ITI / Prof. T.K. Mani, VU3WIJ / Shaji.P.B, and my colleague A.P. Manoj.

HUMOUR

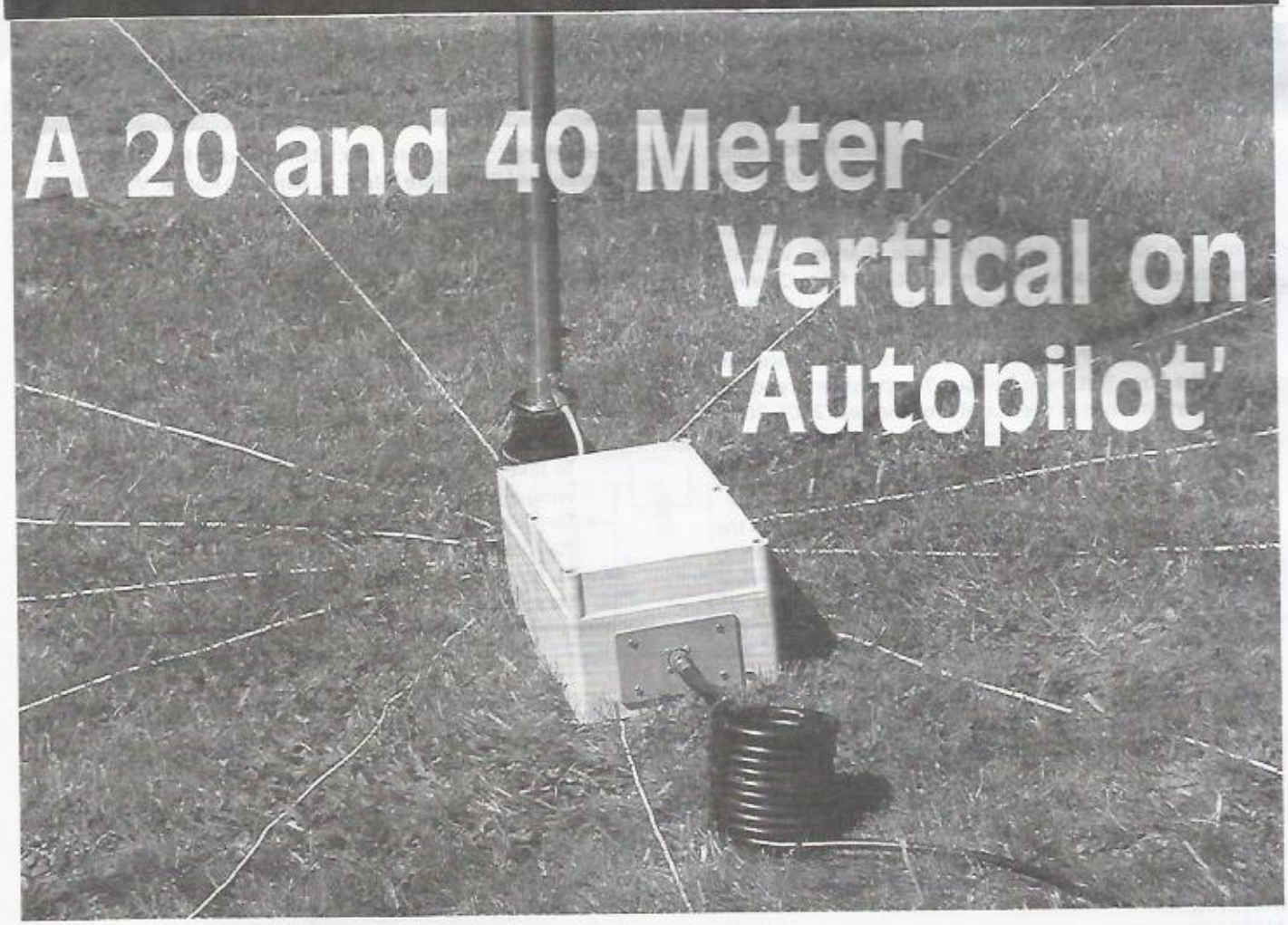
Fleaspeak

This rig puts out a BIG signal
This is a really good CW rig
This is a really good SSB rig
This is a really good rig
The transmitter is outstanding
The receiver is really hot
This rig is really hot
It seems to be a vintage regenerative type
I just retubed it
I just aligned it
I don't know if it works

English Translation

It's 50 kHz wide
It doesn't work on SSB
It doesn't work on CW
It doesn't work on CW or SSB
It doesn't receive
It doesn't transmit
It's stolen
It oscillates
Got 'em from questionable used tube stock
The slugs on the transformers are jammed
It doesn't work, probably never has

A 20 and 40 Meter Vertical on 'Autopilot'



An old "Hints & Kinks" item results in an excellent Field Day antenna.

Dan Richardson, K6MHE

With its size, ease of installation, and reliable performance, the 40 meter quarter wavelength vertical antenna is a very popular HF antenna. What's more, with proper matching, it also performs very well on the 20 meter band. Being a half-wavelength on that band, the antenna provides an efficient low-angle radiation pattern, with roughly a dB of gain over the shorter standard quarter-wave vertical.

This article describes a dual-band vertical antenna system for 20 and 40 meters that I built for portable Field Day use. It uses a somewhat innovative tuning method that, after the initial setup adjustments are made, permits operation on ether band with no further tuning required—and it works great!

I discovered this scheme while perusing some past issues of *QST*. I had a very nice telescoping 35 foot marine vertical whip that I wanted to use for an upcoming Field Day

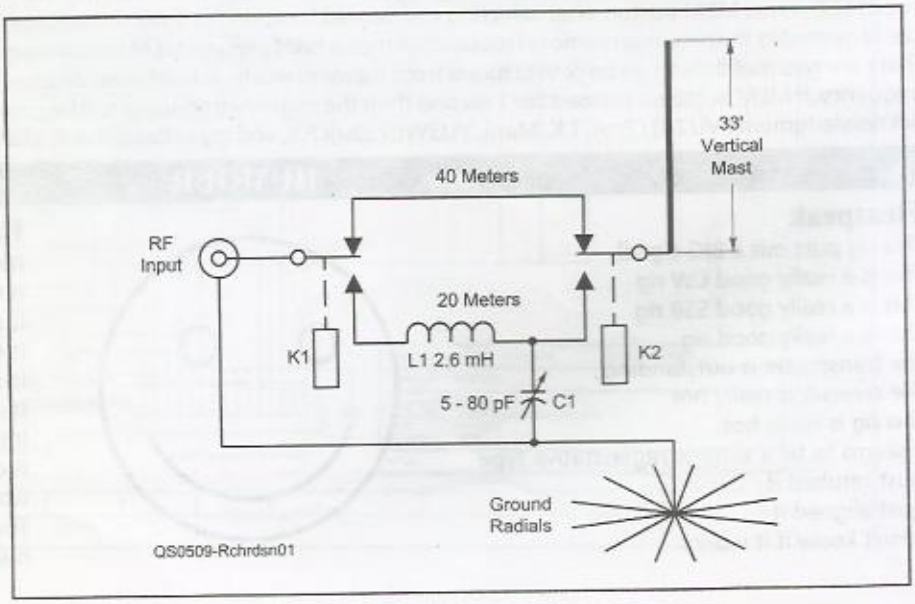


Figure 1—Using remote relays (K1, K2) for dual-band operation. One DPDT relay could be substituted for the two relays.

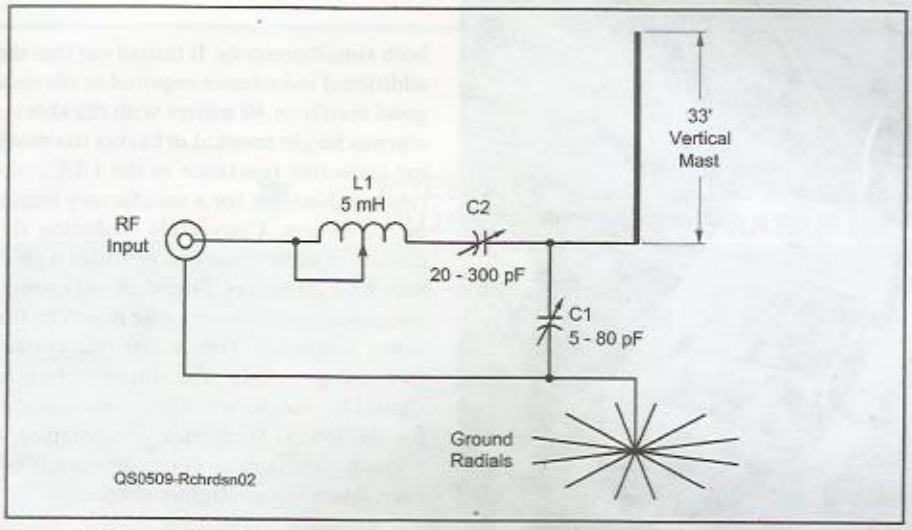


Figure 2—The modified L-network for dual-band operation—without relays.

and, while looking for some ideas, I came across this novel method for dual band operation. It was described by Wes Hayward, W7ZOI, in an old *Hints & Kinks* column.[1]

Typically, a quarter-wave vertical is fed by directly connecting the coaxial feed line to the base of the antenna. As the base impedance is low (typically 40-70 :, depending upon the ground/radial system utilized) this technique provides an acceptable SWR and works well. However, the base impedance of a half-wave (20 meters, in this case) vertical is much higher (around 1100 :); therefore a matching network is required to successfully feed the antenna with coaxial transmission line. Prior to discovering this method, I had only seen this type of dual-band operation performed using remote relays (K1, K2) in conjunction with an L network (L1, C1), as shown in Figure 1.

This innovative approach involves placing an additional capacitor in series with the inductor of an L network so that, when properly adjusted, a conventional 40 meter, 1/4 wavelength, vertical will operate on both the 40 and 20 meter bands with an acceptable SWR with no need for switching schemes or any additional adjustments.

How it Works

W7ZOI's modified network, shown in Figure 2, is easily understood when compared side-by-side with the simple L network of Figure 1. L1 and C2 form a series resonant circuit that behaves—on 40 meters—as a short circuit. The result is the same as having the relay contacts in the 40 meter position, as shown in Figure 1. The shunt capacitor (C1) reactance on 40 meters is roughly ten times that of the antenna's base (feed-point) impedance and therefore has a negligible effect on matching. The net result is the antenna's low base impedance essentially remains unchanged to the coaxial transmission line on 40 meters.

Twenty meter operation is accomplished by adjusting L1 and C2 so that the net inductive reactance is the same as it would be in the basic L network. The value of C1 remains the same in both networks.

So, we end up with a matching system that does double duty. The modified L network is adjusted so that L1 and C2 provide the proper amount of inductive reactance such that, when used with C1, matches the high base (feed point) impedance of the antenna on 20 meters. And, simultaneously, it maintains the series resonance that is required for matching the antenna's low base impedance on 40 meters. A pretty neat idea!

Construction

I built the entire network solely from junk-box parts. As is usually the case when building a project like this, my treasure trove did not contain capacitors of the exact values recommended by W7ZOI. I substituted a 100 pF capacitor for C1 and a 500 pF capacitor for C2. Originally, I was concerned that, by using larger values than those recommended, particularly for C2, the minimum capacitance values might be too large for proper tuning; however, this turned out not to be the case. The inductor was made from a section of coil stock (2 inch diameter; 14 gauge wire; 10 t at 8 tpi). All components were mounted on a 1/8 inch thick plastic panel, which; in turn, was installed in a watertight housing that had seen previous life as part of a shipboard antenna system. The completed network is shown in Figures 3 and 4.

If you choose to build this project take care to use capacitors that have a sufficiently high voltage rating. Mine are rated at 4.5 kV and should easily handle 500 W or more. [Vacuum capacitors would be ideal for this application, but they are expensive.—*Ed.*]

Tuning

As I stated earlier, my antenna's height is about 35 feet; therefore, its resonant frequency falls below the 40 meter band. This caused me no problems when tuning; however, I did have problems trying to adjust the network with an antenna height that was slightly less than 1/4 wavelength. I will discuss this in a moment.

Tuning was done empirically. Using an MFJ-259B antenna analyzer, the tap on the inductor was set near maximum inductance and capacitor C2 was adjusted for the best indicated SWR on 40 meters. Next, the analyzer's frequency was changed to the 20 meter band and C1 was adjusted for the best SWR, but the match obtained was not good. I next moved the tap on the coil in the direction of less inductance and C1 and C2 were adjusted again for their respec-

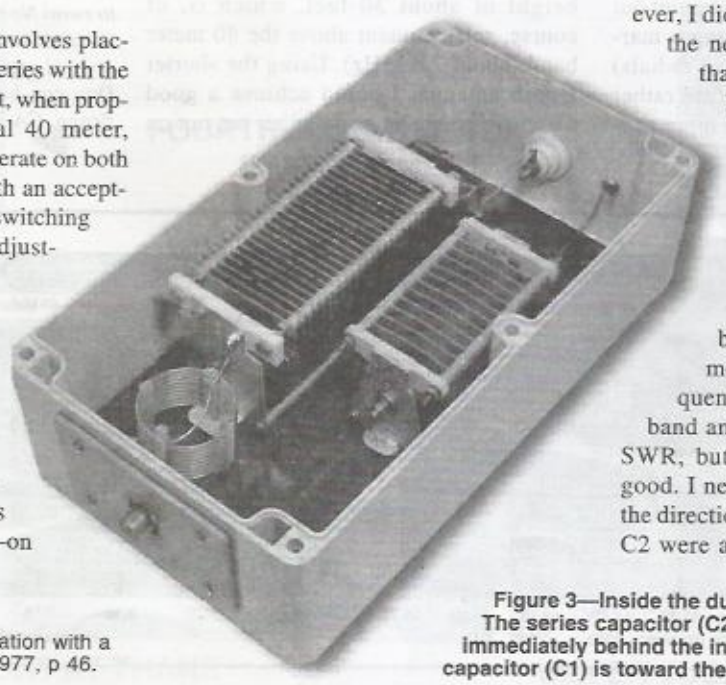


Figure 3—Inside the dual-band modified L-network. The series capacitor (C2) is at the top left, immediately behind the inductor (L1). The shunt capacitor (C1) is toward the right.

[1]W. Hayward, "Dual-Band Operation with a 33-Foot Vertical," *QST*, Jun 1977, p 46.

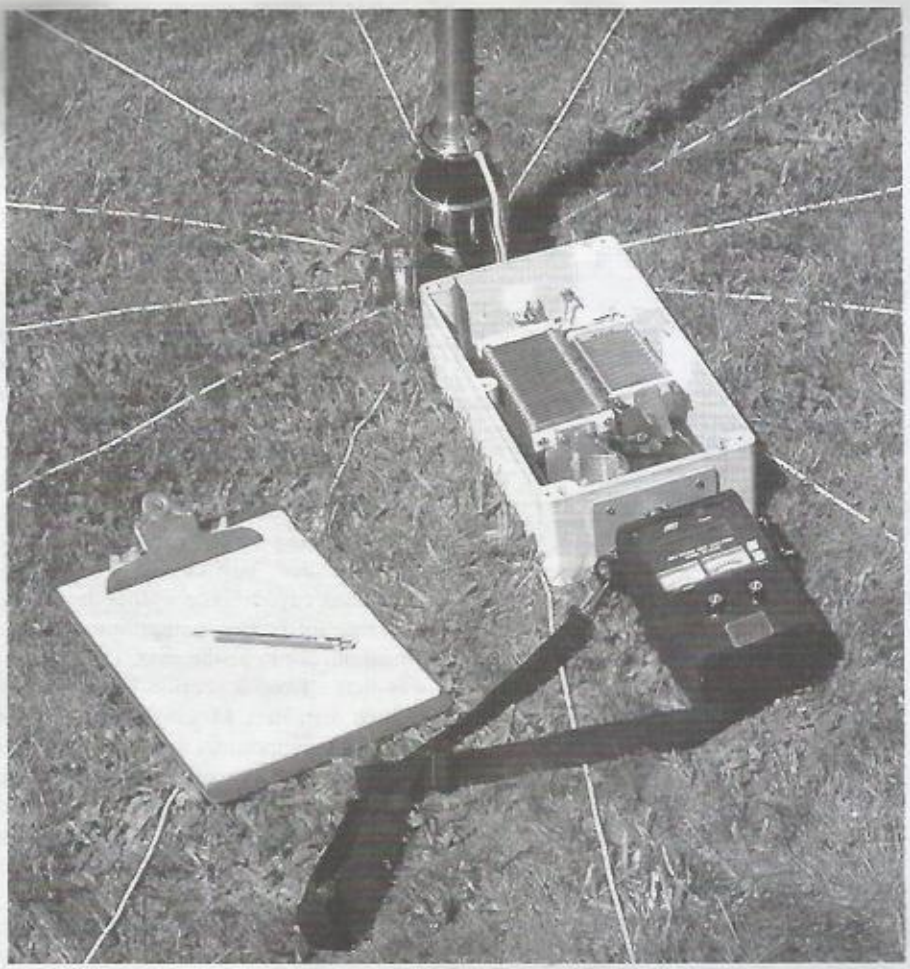


Figure 4—Tuning the network with an SWR analyzer. See text for tuning suggestions.

tive bands. This process was repeated until satisfactory SWR readings were obtained. (My requirement was to have the SWR fall below 2:1 on both bands. Many solid-state rigs start reducing their power or, worse yet, shut down at an SWR of 2:1.) The resulting SWR curves are shown in Figures 5(A) and (B). I should point out that this system was tuned using a marginal radial system (only twelve radials) and the SWR curves are therefore rather broad. Those curves would be more pronounced had the antenna been adjusted utilizing a more efficient ground system.

My telescoping mast comprises six sections that, when extended, reaches about 35 feet. As a matter of interest, I tried tuning the antenna with one of the sections retracted, resulting in an overall antenna height of about 30 feet, which is, of course, self-resonant above the 40 meter band (about 7.8 MHz). Using the shorter length antenna, I could achieve a good match on one band or the other but not on both simultaneously. It turned out that the additional inductance required to obtain a good match on 40 meters with the shorter antenna height resulted in having too much net inductive reactance in the L1/C2 series combination for a satisfactory match on 20 meters. Conversely, reducing the amount of inductance that provided a good match on 20 meters did not afford enough inductance for an acceptable match on the lower frequency. Hence, for this system to work properly, the antenna height should be no shorter than 1/4 wavelength for the lowest frequency of operation. I found no detrimental consequences, however, when it was slightly longer.

Conclusion

After the initial adjustments, the network performed flawlessly. Alternating back and forth between 20 and 40 meter operation required nothing more than changing the frequency/band selection on the radio, with no concern whatsoever about the antenna system.

I am surprised I haven't seen this technique in wider use. Given that more than 25 years has passed since it was first published, I felt it worthwhile to present it again for those who may not be aware of this practical and versatile design.

I wish to thank to Wes Hayward, W7ZOI, for his review and suggestions in the preparation of this article.

First licensed in 1955, Dan Richardson, K6MHE, enjoys experimenting with antennas. Dan was an electronic technician in the US Coast Guard during the 1950s and '60s; he then joined the family foundry business, retiring about 10 years ago. After he had moved to rural Northern California, Dan's devotion to antennas flourished, and he's published several articles in leading amateur journals. Dan can be reached at PO Box 2644, Fort Bragg, CA 95437 or **k6mhe@arrl.net**.

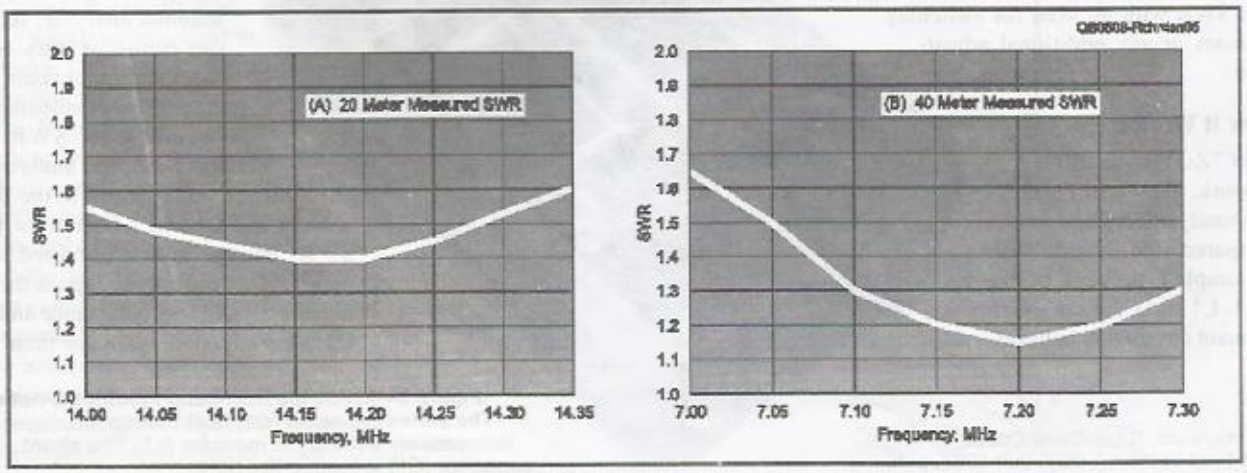


Figure 5—The SWR at 20 meters (A) and 40 meters (B).

CLUB NEWS

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BY VU2GMN AT VIGYAN PRASAR NEW DELHI

WORKSHOP ON DISASTER MANAGEMENT
AT
AHMEDANAGAR

FOURTH MAHABALIPURAM
EYEBALL MEET

FIELD DAY AT THANE

SILVER JUBILEE CELEBRATIONS
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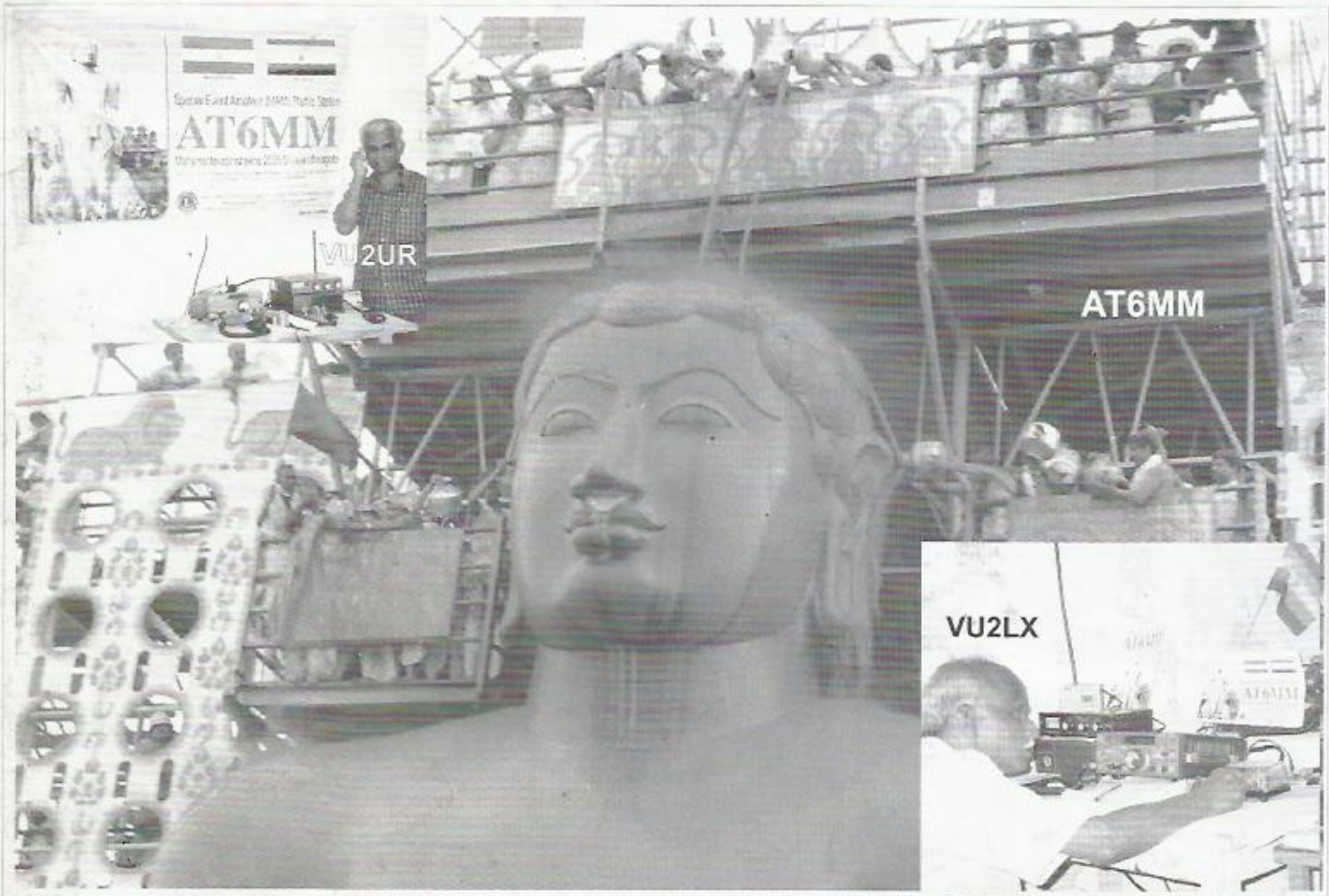

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