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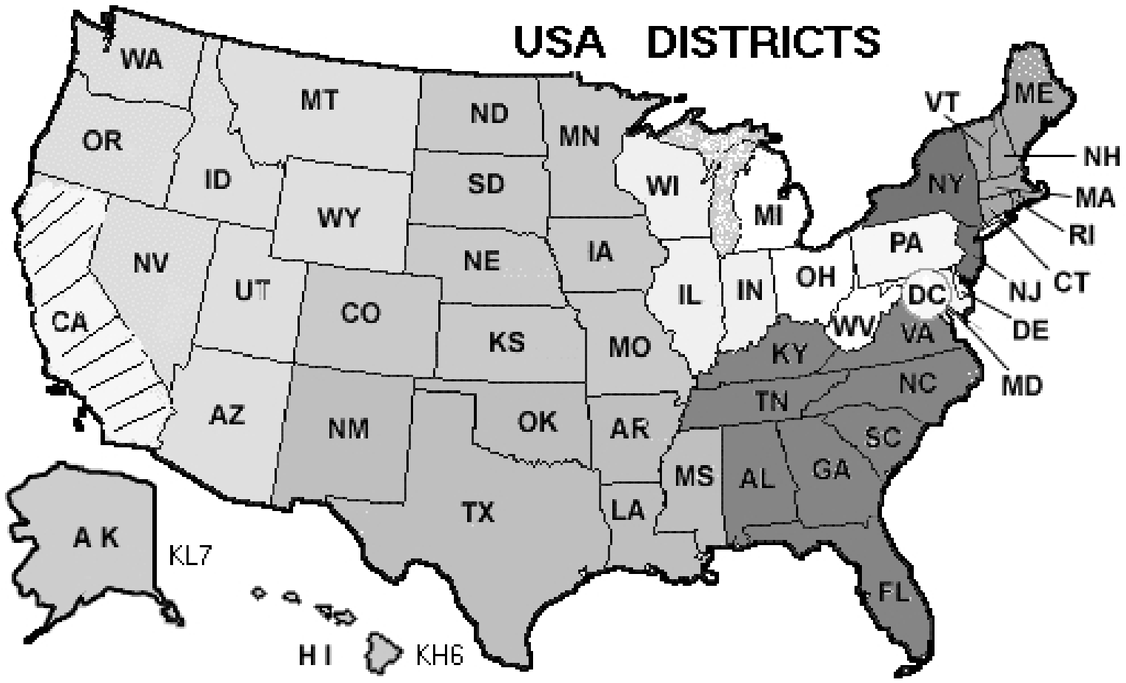

W0 (CO) Colorado ITU 7 Zone CQ 4
W0 (IA) Iowa ITU 7 CQ 4
W0 (KS) Kansas ITU 7 CQ 4
W0 (MN) Minnesota ITU 7 CQ 4
W0 (MO) Missouri ITU 7 CQ 4
W0 (NE) Nebraska ITU 7 CQ 4
W0 (ND) North Dakota ITU 7 CQ 4
W0 (SD) South Dakota ITU 7 CQ 4
W1 (CT) Connecticut ITU 08 CQ 5
W1 (ME) Maine ITU 08 CQ 5
W1 (MA) Massachusetts ITU 08 CQ 5
W1 (NH) New Hampshire ITU 08 CQ 5
W1 (RI) Rhode Island ITU 08 CQ 5
W1 (VT) Vermont ITU 08 CQ 5
W2 (NJ) New Jersey ITU 08 CQ 5
W2 (NY) New York ITU 08 CQ 5
W3 D.C. ITU 08 CQ 5
W3 (DE) Delaware ITU 08 CQ 5

MAP BY AC6V

W3 (MD) Maryland ITU 08 CQ 5
W3 (PA) Pennsylvania ITU 08 CQ 5
W4 (AL) Alabama ITU 08 CQ 4
W4 (FL) Florida ITU 08 CQ 5
W4 (GA) Georgia ITU 08 CQ 5
W4 (KY) Kentucky ITU 08 CQ 4
W4 (NC) North Carolina ITU 08 CQ 5
W4 (SC) South Carolina ITU 08 CQ 5
W4 (TN) Tennessee ITU 08 CQ 4
W4 (VA) Virginia ITU 08 CQ 5
W5 (AR) Arkansas ITU 7 CQ 4
W5 (LA) Louisiana ITU 7 CQ 4
W5 (MS) Mississippi ITU 08 CQ 4
W5 (NM) New Mexico ITU 7 CQ 4
W5 (OK) Oklahoma ITU 7 CQ 4
W5 (TX) Texas ITU 7 CQ 4
W6 (CA) California ITU 6 CQ 3
W7 (AZ) Arizona ITU 6 CQ 3
W7 (ID) Idaho ITU 6 CQ 3

W7 (MT) Montana ITU 6 (excluding Montana east of 110W) (ITU 7 Montana east of 110W), Both are CQ 4
W7 (NV) Nevada ITU 6 CQ 3
W7 (OR) Oregon ITU 6 CQ 3
W7 (UT) Utah ITU 6 CQ 3
W7 (WA) Washington ITU 6 CQ 3

W7 (WY) Wyoming ITU 6 (excluding Wyoming east of 110W) (ITU 7 Wyoming east of 110W),Both are CQ 4

W8 (MI) Michigan ITU 08 CQ 4
W8 (OH) Ohio ITU 08 CQ 4
W8 (WV) West Virginia ITU 08 CQ 5
W9 (IL) Illinois ITU 08 CQ 4
W9 (IN) Indiana ITU 08 CQ 4
W9 (WI) Wisconsin ITU 08 CQ 4

KL7 (AK) Alaska (ITU Zone 1,2 CQ Zone 01)
KH6 (HI) Hawaii (ITU Zone 61 CQ Zone 31)

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"AMATEUR RADIO - A NATIONAL RESOURCE"

HAMFEST 2003, GANDHINAGAR, GUJARAT

Unity Is The Motto

HAM

RADIO

NEWS

HAMFEST 2003, GANDHINAGAR, GUJARAT

Unity Is The Motto

The Inauguration

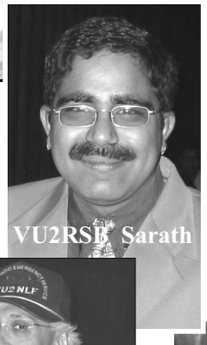
Mr. P.K.Laheri

VU2HBZ, Joravar

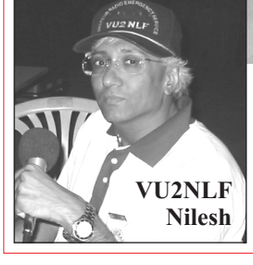
Souvenir release

The M. C.

Speakers



VU2RSB Sarath



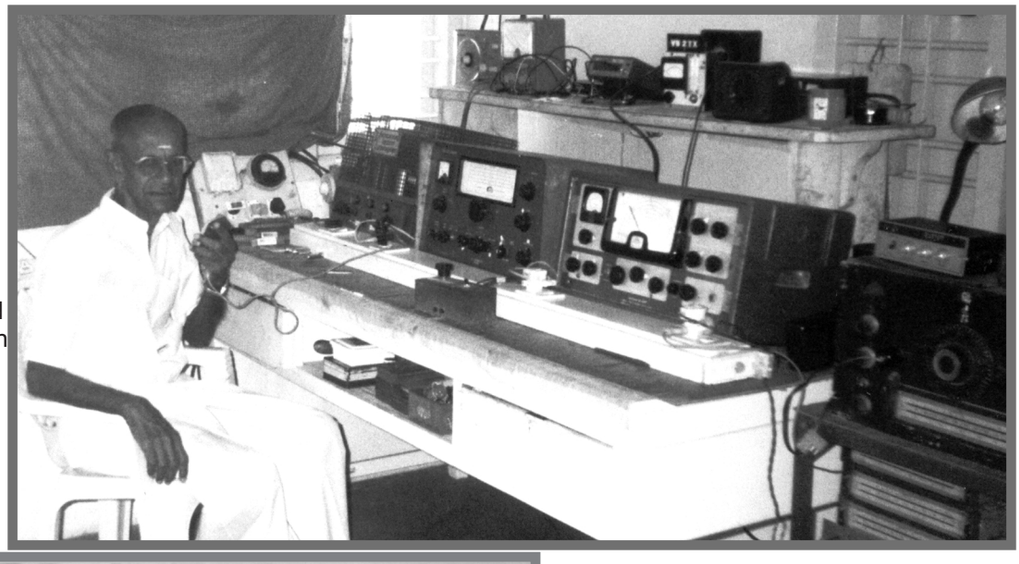
VU2NLF
Nilesh

Delegates

Registration

ARSI Annual General Body Meeting at Gandhinagar.

JOTA at Shantinagar Highschool, Miraroad, Mumbai.



VU2TX, OM SAMY
in his shack. He is featured
in the “Ragchewing” column
in this issue.

Lions Clubs International
Ham Radio Station
VU2LCI

JOTA AT
VU3LLE,
Little Lilly’s
English Highschool,
Bangalore

FROM THE OUTGOING PRESIDENT'S DESK.

This piece is being written a few days before the AGM of the Society, and is therefore the last one penned by me.

First, I thank each and everyone of you for the affection and trust you placed on me during my tenure as President. I wish the new committee the very best and I am sure they will do their utmost for this wonderful hobby and for ARSI.

During the last couple of years it as been observed that most of the associate and student members joining the Society are those who had cleared the examination and were awaiting their licence from WPC. They joined mainly to secure assistance in this matter. Thereafter, they forgot that they were members of ARSI. There have been nearly 50 such cases during 2001-2003.

I am not in a position to make any suggestion for improving this situation. One way would be to enroll such members for three years or more. Abolishing this category will hurt genuine SWLs. The new Governing Council may like to give a thought to this problem.

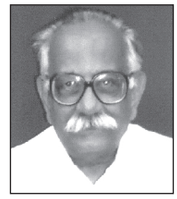
According to the latest count, 9 countries in Europe (including U.K.), at least one in Africa, Australia and New Zealand have already abolished or are in the process of abolishing Morse Code from their syllabus. USA and Canada are reportedly undertaking an opinion poll. Since our WPC wing has not yet expressed any opinion in this matter (they have not yet issued the Notification for the reduction of speed for Grade I exam), it is suggested that Indian amateurs should write to the Secretary of Dept. of Telecommunications or Wireless Adviser, requesting to abolish mandatory requirement of Morse Code for operations below 30 Mhz. This will serve as an opinion poll for the WPC Wing.

On a personal note, since the new Governing Council is taking over shortly, it will decide who is to liaise with the WPC Wing in matters concerning licensing problems of members. Accordingly, members and others are requested not to send their papers for new licenses, renewals, change of QTH etc to me. They may contact the President or the Secretary for advice.

Wishing one and all, HAPPY HAMMING.

Sahruddin

PRESIDENT'S REPORT



The new committee has taken charge of ARSI and will now operate from Bangalore. We have not even inherited a chair let alone a Desk. So it is more appropriate to call this column as the President's report.

At the outset, the new compete wishes to thank all members, for showing confidence in us and electing us. We on our part assure all of you that we will do our best to run ARSI to the best of our ability

It is said that a new broom sweeps better but we do not want to sweep all the past, particularly not under the carpet. The many good things painstakingly developed by the past committees has to be preserved and developed.

Many members at the AGM desired that efforts should be made to increase our membership. At present we have about 750 members, (including defaulting members). We hope to bring back the defaulting members into the active list. The AGM has agreed to forgo the arrears. That will be an incentive for all old members to rejoin the ARSI. This information has to be to be given to the defaulting members by word of mouth as they do not get the HRN. We request all members to help in this.

During our tenure we plan to have many membership drives and hope to increase our membership to more than 1000.

HRN has been published regularly thanks to the fine efforts by our able Editor Ms Sarla VU2SWS. She has kindly agreed to continue as Editor.

We have many projects to improve the working of our organization. As and when we are in a position to take it up we will keep you all informed through HRN or postal circulars as required.

Finally the Governing Council would like to have suggestions from all members to improve the working of ARSI. You can contact any one of us by Post, Phone, E mail ,Etc.

Effort by all of us would yield some results!!!

73s

Chandru VU2RCR

CQ ALL VU HAMS

Greetings of the Season! I am very happy that a new ARSI team has been elected and I wish Chandru and his team every success!! Even though I have been elected as Vice President, my heart is totally dedicated to this editorship. But I am also sad that my very good friend VU2SDN Sahr, has retired. It was his immense confidence in me that made me undertake this job and he was a pillar of support. But on the brighter side, I hope to meet him more on air!!!!

The Hamfest at Gandhinagar was a job well done and I am sure that all participants and organizers had a great time. The Gandhi sketch on the cover is R.K.Laxman's, though the handy in his hand was entirely my idea!! After all we should smile and laugh at everything, and I hope this depiction of Gandhi made you smile.

Before sighning off, I again request all of you to send me articles, tidbits, information for the magazine. Please don't forget, the HRN is your magazine.

Wishing all of you a very merry Christmas and a Happy New Year,

Sarla VU2SWS

OFFICE BEARERS

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QSL Bureau: P.O.Box 17116, Kolkata 700033.

The current address of the society is: **ARSI, c/o R.Ramachandra , VU2RCR, 488, 14th Main, 3rd block, Koramangala, Bangalore 560034.**

Join the ARSI newsgroup by sending an email to ARSI-subscribe@yahoogroups.com or visit the group for old announcements at http://groups.yahoo.com/group/ARSI/

W.P.C Address : The Assistant Wireless Adviser to The Government of India, Ministry of Communication & Information Technology, Department of Telecommunications, WPC Wing, Amateur Radio Section (Room # 619), 6-Floor, North Core, Sanchar Bhawan, NEW DELHI-1 1 0 0 0 1. Ph: 011-23355441, 011-23036951 Fax: 011-2371611

PAYMENT INSTRUCTIONS

Till the Newh Governing Council completes the formalities of shifting the ARSI Office to its new premises, members should continue the old procedure of payment. Payment should be made by a local cheque or cash at any branch of **ICICI Bank**(not ATM), quoting the name of the Society in full(Amateur Radio Society of India) to **account no.629701181104.** The counterfoil, either the original or a photocopy should be sent to Mr.Sahruddin, 274,Paryatan vihar, B-4, Vasundhara Enclave, N.Delhi 110096. This is absolutely necessary, till further notice. **Where there is no branch of ICICI bank,** the payment can be made through a demand draft, obtained from any bank, drawn in favour of "Amateur Radio Society of India"(not ARSI) and payable at Delhi/N.Delhi.

Payment of Subscription:

IT WAS DECIDED AT THE ANNUAL GENERAL BODY MEETING AT THE GANDHINAGAR HAMFEST THAT AS A ONETIME MEASURE, ALL ARREARS WILL BE WRITTEN OFF AND MEMBERS COULD PAY THEIR CURRENT DUES TO CONTINUE THEIR MEMBERSHIP BEFORE 31ST MARCH 2004. Several associate members who have since received their call signs are now eligible for corporate membership. They are now required to pay Rs.150 as annual subscription instead of Rs.75. As licenced amateurs they are no longer eligible for associate membership.

UNIDENTIFIED PAYMENTS

Date	Amount	Date	Amount	Date	Amount
12.11.02	125	12.03.03	225	13.05.03	150
17.06.03	310	08.07.03	6	10.07.03	85
12.07.03	470	21.07.03	120	25.07.03	70
02.08.03	75	27.08.03	310	10.09.03	300
15.09.03	255*	19.09.03	200		

(*DD No.438779 deposited in bank at Delhi. The identity of payer not recorded).

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.

FEEDBACK

VHF OPERATIONAL PRACTICES:

1. It is illegal to trigger a repeater without transmitting a call sign. If you want to check whether you are able to access a repeater but do not wish to engage in a QSO, simply transmit 4S5AA testing.
2. Never engage in transmitting third party traffic. Do not ask another station to QSY to a predetermined frequency without announcing that particular frequency. Don't ask another station to QSY or QRP to discuss an important message.
3. Ensure proper behaviour of an amateur. You must not engage in transmissions that are intended to do on telephone.
4. Do not get into the habit of contacting few particular stations only. If another station calls you after a QSO reply him/her. If you do not wish to engage in another QSO announce QRT or 'closing down' during sign off.
5. Announce your call sign like "4S5AA monitoring" or "4S5AA listening" to engage in a QSO on a repeater. If you want to contact a specific person on the repeater, call him like "4S5BB this is 4S5AA." If you want to join a QSO simply transmit your call sign between two transmissions. Don't call break. If you are having a QSO and another ham transmits his call sign, the next station to transmit should recognise the breaker and allow him to transmit.
6. When operating the repeater, it is advisable to QSY to a simplex frequency whenever possible.
7. Keep transmissions on a repeater short. Don't allow the repeater to time out and shut down. Leave spaces between transmissions. Don't transmit as soon as the other station releases his PTT.
8. If you are a regular user of a repeater, please help to support the repeater to be on the air. Physical support is also necessary as well as financial.

(From the Newsletter of the Radio Society of Sri Lanka)

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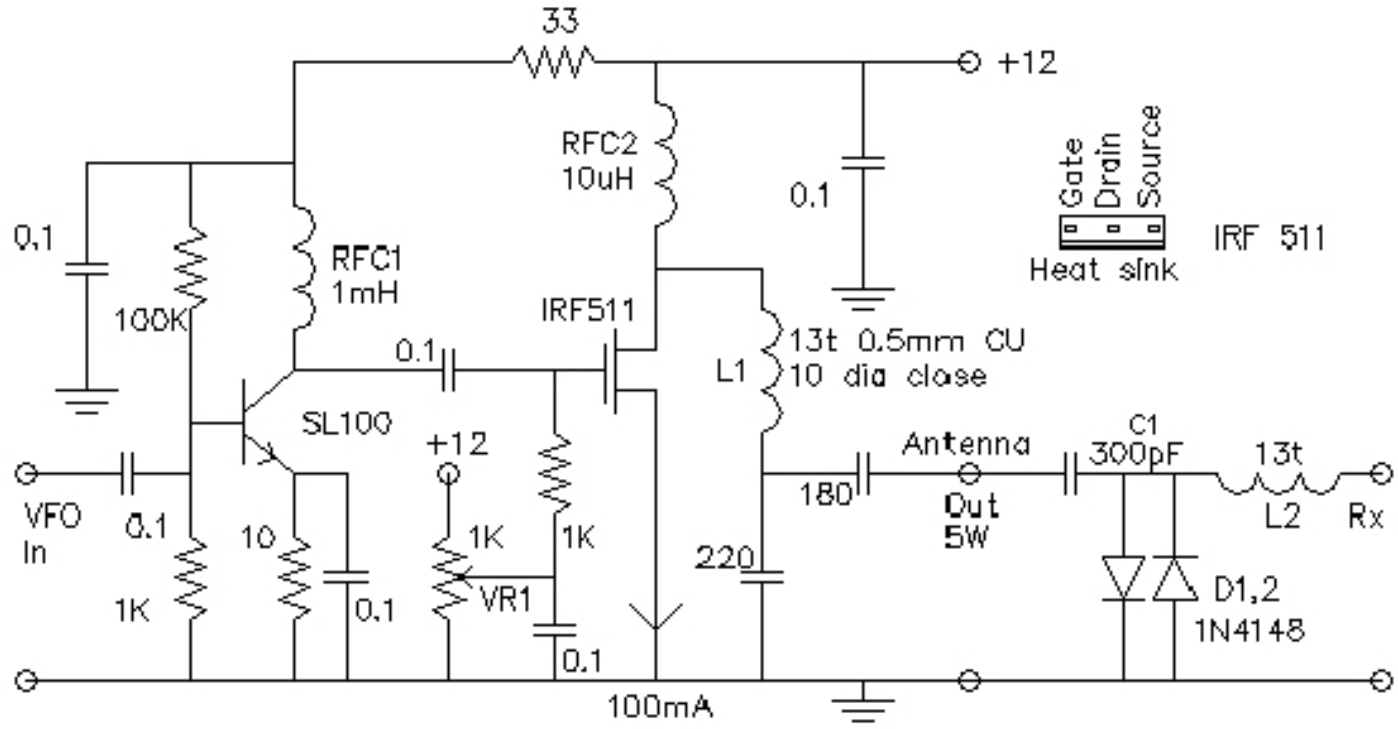
HOME BREW

QRP 5W Transmitter
-by Raj VU2ZAP



Construction Notes:

1. RFC1 is a standard lead type inductor.
2. RFC2 should be substituted by winding approximately 40 turns of 0.5mm enameled copper wire on a 10mm diameter plastic tube or rod.
3. L1 and L2 are would on 10mm plastic tube or rod with 0.5mm enameled copper wire.
4. Before applying power to circuit, set VR1 to minimum position.
5. Adjust current in IRF511 by VR1, to 100mA.
6. Mount IRF511 on a large heat sink. Small heat sink will result in the device running very hot and the power output will drop.
7. L2, C1 with D1,2 form part of the antenna switching circuit. They may be omitted if not required.
8. To control power output insert a small potentiometer at the VFO input to this circuit.

The Amateur's Code (Written by Paul M.Segal, W9EEA, in 1928 :-
The Radio Amateur is :
CONSIDERATE ... never knowingly operates in such a way as to lessen the pleasure of others.
LOYAL ... offers loyalty, encouragement and support to other amateurs and local clubs.
PROGRESSIVE ... with knowledge abreast of science, a well-built and efficient station and operation above reproach.
FRIAENDLY ... slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.
BALANCED ... radio is an avocation, never interfering with duties owned to family, job, school or community.
PATRIOTIC ... station and skill always ready for service to country and community.
(Re-produced by Bal-sun, VU2UYC.)

Think about it ! ! !
Can you imagine tuning across the Ham bands ad not hearing the music of Morse Code? It would be like walking a country road without the songs of the birds!!!. High Tech is good; let us give our minds to it, not our souls.
"World Radio" submitted by VU2VIT, Vittal.

HALL OF FAME

VU2 AJ, OM DUTT
CQ DX WW CW Contest 1958, 1962, 1985, 1988, 1998.
ARRL CW DX Contest 1962 & 1963, SACAJ twin city Washington 1965,
VU FIRST GARDEN CITY contest 1985, AIR NET INDIA INTL DX contest both in
CW and in CW and Phone combined in 1983,
WGDC USA with higest title "DANGER RANGER"WA-VK-CA in 1963,
ADXA special award in 1970 from JARL, ROYAL OMANI ARS silver jubilee award,
WORKED ALL TIGERS EAST- PAKISTAN ARS,
First VU to bag coveted "GOLDEN JUBILEE DXCC" from ARRL in 1968,
First VU to get "RADIO COMMUNICATIONS CERTIFICATE" from city and guilds of London Institute in 1938, when radio activity in India was minimum.
Present qth: Mumbai

VU2SDU OM SHAIKH
DXCC for mixed SSB
Present qth: Chennai.

SWL VU 0020, T.K.VISHWANATHAN
IOTA(first IOTA for India credit-177 Islands) GSQA from Germany (First award in south east Asia)
SSA-75 from Sweden
Maritime mobile award from Poland R-150-C CW from Russia
WSPHCM from Poland, BAFARA from Belgium
CWJF from Brazil
EWWA HF 200-CW from France
Present qth: Tellicherry, Kerala

VU2SMN OM SUHAS

DXCC-(PHONE), 10M, DXCC(GOLD), YL.DXCC, MARCO ROLO (HONOR WITH GOLD MEDAL), WPX (HONOR), ISLANDS OF THE WORLD (HONOR) DIG TROPHY, DUF (MEDAL), DAF (EXCELLENCE), IARS REGIII (HIGH HONOR TROPHY), GUGLIELMO MARCONI(GOLD MEDAL),ADXA(SPECIAL AWARD), AUSTRALIA DISH, CAPTAIN JAMES COOK, NINE DRAGONS, CHENGIS KHAN, WHITE STICK, WORLD PEACE, TROPIC OF CANCER AND CAPRICON, WAZ, WAC, CIA, CQDX 10M, TRANS PACIFIC, TPA, JCC, AJD, UNITED NATIONS, WORLD CHAMPIONSHIP, JORDANIAN SILVER, AMERICAN EAGLE DX, SHERLOCK HOLMES, DX DYNASTY, CATCH 22,WASCC,WAFCC,WECC,WAMCC,1,00,000, ALL NATIONS, IARU REGI (SPECIAL), DIG 77, WGLC, W.DIG.M,WAE, EU.PX.A, EU.DX.D, OLYMPIC GAMES, EUROPEAN COMMUNITY,100NATIONS,RED CROSS, RAAG, ALL PARAGUAY, BRAZILS FRONTIERS, ALL AFRICAN CONTINENT, ALL PACIFIC, UNICEF, LION CITY SINGAPORE,21 MERIDIEN, ALL ASIAN PREFIXES, CHC/ITU ASIA, ROYAL OMAN, ALL KOREA, CENTRAL AMERICA,24TH OLYMPICS,1988,RHINE RIVER,100) BLASTS USSR, SLY FOX, ALL MEDITERRANEAN,S6S CZECHOSLOVAKIA, ALL KENYA, WPX ZONE 15,BFRA,KANGAROO ISLAND, ITU 17/18,28 PARROTS AUSTRALIA, DANUBE RIVER, SOUTH AMERICA, GRAND PRIX, JUBILEE TRADE TRAIN, ALL ZONE 14,NCDXF CERTIFICATE, JUBILEE 150 AUSTRALIA, 40TH ANNIVERSARY ISRAEL, 40TH ANNIVERSARY PAKISTAN AND BRAZIL, ZONE 40 (SPECIAL),ALL ITU ZONES, COMMONWEALTH CENTURY CLUB, NORDIC COUNTRIES, MAPLE LEAF AND MANY MORE. PRESENT QTH: KOLHAPUR.

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HOME BREW

Using Readily Available Components For Hombrewing

Rahul, VU3WJM

There are many facets to our wonderful hobby but I have always been very fascinated with the homebrew side of our hobby as it is particularly satisfying when a project is completed and its performance equals or surpasses that of commercial gear. Having seen my interest in this side of the hobby, OM Zal, VU2DK, asked me to put down some tips on utilizing readily available commercial components for ham use in VU land. So, here are a few ideas from me. If you find even one of these interesting , then the effort has been well worth it. You will not find any formulae or circuits here, but hints on practical applications and use of readily available consumer electronic components.

COILS:

There are two categories

I) Tuned

II) Broadband

I)Tuned :

These come in three varieties :

a) Variable / Tunable type: The range covered by this type extends from the top band to the 6mtr band. Normally these are of the cup dumb-bell type and are similar to the 10mm IF transformers we encounter in transistor radios. They are classified by the colour marking of its core i.e. the colour on the base of the dumb-bell. The red ones are used in the lower frequency range up to 2Mhz. The yellow coils are used for rest of the HF bands and are termed as MH81 in commercial circles. There are also plain black cores that are generally considered equivalent to MH81 and have near about same characteristics. They are of most use to us for bandpass and IF coils in homebrew sets

Practical applications : These include ROSY type TV - IF coils in NR60, coils of ATS1, etc. Recommended wire gauge for winding is 42-44 SWG.

The world goes gaga over TOKO coils. They can be found in junk boards. Even if not new, these coils are excellent for use upto 80Mhz and consist of a four-section former with a cup type ferrite shield and screw type core. I would recommend them for good performance on HF bands. The ferrite cup in itself makes an excellent toroid for tuned coils.

Practical applications : 10.7 MHz IF coils, 36MHz and 72MHz bandpass coils of WVX 2mtr VHf homebrew rig and coils in Elecraft K2 HF kit.

b) Toshiba type : These coils are so called because of its use in TV chassis of the same company. They have a simple former - 5mm in dia. with a screw type core. The coil is used for frequencies up to 100 MHz. These coils are highly recommended for upper HF bands and beyond. They have been successfully used in CQ DL design on 14Mhz and in currently highly popular RM96 by OM RAO VU2RM. Recommended wire gauge is 30SWG onwards.

Others: Recently few other types are also seen like the dumb-bell cup type in 7mm sq package and its 5mm height variant. They are frequently encountered in the electronic stuff originating from the east of VU land, but its all like chowmein and a bit difficult to work with. Coils from cordless phones (working around 46-49Mhz) can be used for making 6m equipment. We also encounter other low frequency coils from SMPS power supplies and electronic ballast for CFLs. Such coils are good at low frequency. OM Zal, VU2DK has successfully used them to make LC AF filters (true HAM ingenuity). I intend to use them in assembling single conversion transceiver ARRL design.

c) Air core : These coils are mainly used in circuits from 6m onwards. They are coreless, self supporting type so not much trouble in their construction. Coils on simple formers are good choice for high stability VFO. I would like to mention that an excellent former for making the VFO coils is a plastic disposable syringe.

(II) Broadband :

In order to cover whole of HF spectrum the current technology follows broadband design for general work. Big cores are not required and CATV equipments have many that can be used by home brewers. The common types used are 5mm bead, 7mm bead, 2-hole types, miniature baluns, normal baluns, i.e., binocular cores, toroids with 0.5" dia, etc. The smaller cores find application in making RFC's. Broadband coils are used for small signal amplifiers, diode mixer transformers; baluns and toroids in driver stages (1-2 w range) and stacked configuration of toroid and baluns for HF linears PA (bipolar and MOSFET types). These coils can be purchased new or salvaged from splitters and 'tap offs' used for CATV distribution. Why not befriend your local cablewallah and get defunct equipment from him for your homebrew project?

Transistors

Use of transistors in amateur projects have been generally limited to a few common general purpose types like the BC14X/54x series, the BF19X series and the 2NXXXX series. Now however, we also have the 2S A, B, C & D series of transistors from the Far East. These are generally employed in switching stages. Some examples of these transistors are the 2SC1383, 1815, 2SA684, 2SB564, 2SD880 etc. Others like the 2SC1393/94 are good for RF-IF preamplifiers and are freely available. These can also be salvaged from junked B&W TV turret tuners. With the advent of cable TV, transistors with very high ft 5 to 7Ghz - are also available. Common among them are the BFR91/96, 2SC2570, MPS571 2SC3358 etc. They perform well on HF bands with negative feedback. They can be used with tuned circuits for 2m to 70cms and beyond. For slightly higher power we have the popular 2N3866 and BFW16 that can be used upto 70 cms. High current biased transistors are now becoming very popular for RF preamplifiers with negative feedback or noiseless feedback - Norton amplifier configuration. Such transistors also find wide application in driver stages of homebrew HF rigs. While on this subject, I would like to add that we can also use transistors like the 2N3053 and 2N2219 for HF bands.

Another practical approach is to use 2 nos. of 2N2222 transistors in parallel for HF bands. Going to the 2w power stage, we have switching transistors like the BD135-9 being used. The substitute is 2SC1162, a switching transistor which is widely used in emergency lights . Recently I have also seen the 2SC1969 and 2SC1971 in the market. These two transistors are good for homebrewing rigs upto 6m and 2m respectively. The 2N3553 still remains a favorite for a 2m PA stage.

Dual gate MOSFET and FETs find regular application in our circuits. Among the common ones are the 3N200, 40673 but these can now be considered as obsolete. You may use the BF966 and BF981 which are very good devices and also the BF989 which comes in an SMD package. A very common source for these devices are old colour TV tuners as they have a couple of them in each unit. The BFW10 and BFW11 are the only old fets which are regularly available but now we have the 2SK599 also available which is good for use into the VHF range. The 2N3819 and MPF series are also available on and off.

ICs

These components are an integral part of almost all equipment being made in the RF field. The MC1496 has remained quite popular for long but now the NE602/NE612 seems to have taken a lead as these chips are available in the metros but they are a bit expensive.

While surfing the net, I came across the TA7358 which is an FM oscillator-mixer chip. This one has been used in various projects - after carrying out suitable changes - in place of the NE602/NE612. It is easily available and very cheap and it not only has a doubly balanced mixer and oscillator but an RF preamplifier as well. Another similar device is the AN7213. Recently I came across various circuits using 4066 and 4053 digital chips for mixer applications. These too need some attention. The cordless phones use MC3361, 3357, 3359 for NBFM processing. Hence, these ICs are also available quite easily. The ultra cheap scan type FM receivers use the TDA7088 with 70khz IF and RC filters. Thses can be used not only to make simple monitors for the VHF bands but also for direct conversion receivers for HF. These sets also use a BB809 varicap diode used for scan tuning. The BEL7611, as used in the ATS-1 design remains an excellent application of a TV IF chip for general RX processing.

AF amplifiers too form an integral part of my search. It is very common to find LM386 and TBA810 being used but there are devices like the LM380, LM1895, TBA820, TA7368, uPC1213 which are much better devices. For people wanting a bit more power, we have the TDA2002, 2003, 2030, etc which are all used in a variety of consumer equipment.

Cable TV

Components used in CATV are highly suitable for our projects apart from splitters and tap offs being a source of good quality ferrite that is suitable for VHF bands. They are good for HF use too as they are used in this range in the reverse path. The aluminum die cast boxes are suitable for making SWR bridges, VFO assemblies and can also be used for making adaptors of various types to connect cables with connectors that do not match. Attenuators used in cable amplifiers also work well on HAM frequencies and make a nifty accessory for FOX hunting. The red ones are capable of 20db and the blue ones of 30db attenuation. Their 75 ohms impedance does not matter much here.

Lnbs And Set Top Converters

The bullet amplifier used in the LNB line is a good source for MMICs. Components that find application in the field are high FT transistors, PLL ICs like MC14515, MC145152, MC145106, MC44XX series, etc. Pre-scalars like SAB6456 divide by 64,256 upto 1.2Ghz and MC12017 can also be found in the LNBs.

Older satellite receivers also yield NE592 video amplifier and NE564 PLL chip. There are some tuners available that are of interest too. One of them is the analogue tuner covering 900-1750 Mhz range that can be effectively used in RX of 23cm band. They also have a built in pre-scalar divide by 256, capable of working upto 3GHz. This section can be isolated and used with low frequency counters to make good test equipment. The rest of the tuner has good number of SMD components. Another interesting tuner is the one used in set-top converters. When salvaged, it yields quad-diode mixers, divide by 128 pre-scalar varicaps, etc. As far as I know, old defunct LNBs are a very common source of GasFETs.

Coax cable

All of us are highly excited at the large range of co-axial cables that are now available in the market. Unfortunately most of these are for cable TV use and have a characteristic impedance of 75 ohms. So, some sort of transformation is needed to use them with 50 ohm equipment. However, they can be used as phasing lines, transmission line capacitors, coax traps, etc. They are manufactured with different dielectrics like air, foamed polyethylene and rigid polyethylene. It is difficult to use these cables for HAM purposes, as they are normally used with various diameter 'F' connectors. So the best option is to use an 'F' connector' on the original cable and use a 'BNC to F' adaptor that is used between CATV equipment and a signal strength meter. You may fabricate such a connector in a small box. Many brands like Commscope, Hitachi, North American and the world famous Belden cables are available. I have used these cables with many homebrew rigs by making the output of the equipment for 75ohms.

Salvage

A home brewer is always on the lookout for components and what better way than to salvage them from junk. There was a time when one could make a transmitter out of a TV set and the same holds true even today. The tuners provide dual gate MOSFET and other SMD components apart from VCO's, diodes, varicaps, etc. The tuning panel provides a number of multi-turn controls for tuning homebrew stuff. Old mechanical UHF tuners have beautiful air variable capacitors with slow motion tuning. The IF section yields coils, ICs, ceramic resonators, etc. The speakers and the AF amplifier are an integral part of each set. The ferrites in the SMPS EHT section can be used to make RFI filters and chokes. The power FET can be used for TX finals. From the antenna you can make a 2 m beam.

Phones

All of us have defunct ones at home. The microphone cartridge works well as a mike or as a replacement element for our rigs. The keyboard along with the associated dialer chip is an excellent DTMF tone generator. The cradle switch makes an excellent PTT - much rugged then anything else.

Cordless Phones

These instruments are complete units in themselves and can be tuned for local 6m operation by changing the Xtals. If cordless

phones are non functional they can be cannibalized for Xtals, ceramic filters coils, NBFM detectors, AF amps, micro speakers, condenser mikes, antenna, etc. Even without any change one may interface them with the equipment in the shack and be on the band while roaming all over the garden or even while cooking dinner! Hi! There are these Chinese high power units we are all cribbing about. The base gives an output of 4w on 2 m. Wait till I get one of those.

PC's

Fast upgradations have resulted in a lot of them being available in the market. The working ones can be used for logging, CW and other digital mode operations. You may even use one to design PCBs since the Internet has lots of software for older machines. In the non-working PCs you may get lot of SMD components, logic ICs, XTALs, oscillator modules, connectors, capacitors, heat sinks and their associated fans.

Modem Cards

Modem cards have very good audio isolation transformers, optocouplers and buzzers. Even the older, slower ones have them.

Other Equipment

Floppy drives have stepper motors but let me see where you could use them. Ah yes! Push button control for ATUs. From sound cards you can remove the audio amp section, connectors, sockets etc.

UPS invertors can be successfully used for making linear power supplies and battery chargers. It is a simple matter of adding a few more turns to the windings. The UPS transformers really do make a nice PSU for VHF mobiles.

There is more!! But you will have to wait while I open this monster of an old mobile phone and perform a post mortem.....

Silent Key

VU2AJY Shree Amidhar Bhatt of Ahmedabad became a Silent Key on Sunday 5th October 2003 at 0800 hrs. He was 77 years old.

Mr.Jagadish, VU2JH of Hyderabad became a silent key on 16th of September 2003.

VU2LE, OM Bala became a silent key on the 2nd of December 2003 at Chennai.

Contest Calender

FEB 21st, 22nd 2004 ARRL CW International Dx Contest
MARCH 6th-7th 2004 ARRL PHONE International Dx Contest.

Governing Council Members of the ARSI

VU2PAI - Ananth Pai (Pai)
VU2DPD - Dipti P. Dey (Dipu)
VU2AMB - Anand Bose
VU2ZAP - Rajendra Kumar (Raj)
VU2GMN - Gopal Madhavan
VU2AF - Adolf Shepherd

Two more GC members will be Co-opted in due course.

LINKS AND NEWS

For Satellite timetables: www.heavens-above.com

If u like to home-brew simple INTERFACE CARD and connect to your PC & HF(29 Mhz only), VHF or UHF/SHF by getting a 'LINK' node # from ECHOLINK TEAM, circuit/details etc are available at http://www.microsec.net/eqso.htm

To brew a Fanantenna: http://www.qsl.net/w4sat/fantenna.htm

An anonymous treasure of all Tranciever/like manuals incl. HP/ICOM/yaesu etc.http://212.159.46.133.

The Project Echo satellite is due to be launched on 31 Mar 2004 on a Depnr rocket into low earth orbit. As well as an FM transponder, it will have various data modes, using S and L bands. Further details of the satellite are available at http://www.amsat.org/amsat/sats/echo/article-02-11.html

The Amateur Radio on the International Space Station (ARISS) international team has announced an on-the-air event to commemorate, Roy Neal, K6DUE, who died August 16. ARISS requested that the ISS, Expedition 8 crew communicate from space with earthbound radio, amateurs during the November 29-30 weekend. Those contacting the ISS, by voice (NA1SS) or packet (RS0ISS) through the end of December will be eligible for a special anniversary event certificate. The Frequency details for India of the month-long Amateur Radio special event on board the International Space Station is as follows starting from 29 Nov 2003 is: Callsign (Voice) : NA1SS, (Packet) : RS0ISS

Worldwide downlink (both modes) : 145.800 MHz FM

Voice uplink for India (Region 3): 144.490 MHz FM

Worldwide packet uplink : 145.990 MHz FM

ARISS requests that participants keep all contacts short.

The USSR with its 15 Republics (before it became CIS) had about 198 administrative areas. They covered all the geographical areas held by USSR including those at Arctic and Antarctic land masses. These were officially called "Oblasts" or "Regions", abbreviated as "Obl. or Reg."Every QSL card from the Ex-USSR showed on it, this oblast information as a "three digit" number. The oblasts could be easily identified by the characteristic first alphabet of the suffix in the call signs. Ex: RU1A or UA1AT or RZ1AN or RU1AN etc are all from the Old Oblast of the Leningrad (now renamed St. Petersburg) Krenekel Central Radio Club of the PO Box 88 fame, had awards like Worked 100 Oblasts (R-100-U) etc.,.VU2AJ and SWL VU-0020 are the two known to have this award. VU2UR, though having over 175 Oblast QSLs did not attempt the award. ES1RA of Estonia, has " all the Oblasts Worked" award.

After USSR became CIS and Russia being the big area, redesignated its oblasts by a new system of "two alphabets" identifiers. The "Union of Radio Amateurs of Russia-SRR" which is separate from PO Box 88, organizes "Russian DX Contest" in which the Russians exchange this new identifiers along with their RST. For the RU1A-St. Petersburg area, it is "SP" now.

In the new millennium, a further development has taken place. The Russian are now giving more accurate info about their QTH. Each identifier is now followed by two digits also, which is called a Russian District. This an amateur in St. Petersburg city may send you "SP-01" as his RDA number when you work him next.

A new award called "Russian District Award" is available now for those who can prove their QSOs with more than 100 RDs. More information on request from VU2UR.

Radio would be impossible without *propagation*. How well do you understand this fascinating phenomenon?

1) What ionospheric layer is mostly responsible for long-distance communication on the HF bands?
a. D b. E c. F

2) Propagation of VHF signals along weather-related features is termed:
a. EME c. Sky wave
b. Tropospheric d. Line-of-sight

3) "Ping Jockeys" use what to reflect their signals back to Earth?
a. Airplanes c. Aurora
b. Radar dishes d. Meteor trails

4) Sporadic-E propagation is most common on which two bands?
a. 50 and 144 MHz c. 144 and 222 MHz
b. 21 and 28 MHz d. 28 and 50 MHz

5) Which of the following is the frequency at which a signal—beamed straight up—can *just* be returned to Earth by the ionosphere?
a. Critical Frequency
b. Maximum Useable Frequency
c. Optimum Traffic Frequency

6) The frequency expected to be the most reliable for communication over a specific path is the:
a. Critical Frequency
b. Maximum Useable Frequency
c. Optimum Traffic Frequency

7) If a radio wave makes two successive reflections from the ionosphere without returning to Earth, it's called:
a. A chordal hop c. The equatorial anomaly
b. Whispering-gallery propagation d. Sky wave

8) The Maximum Useable Frequency, or MUF, is the highest frequency that can be reflected by (one) (all) of the ionospheric reflections along a given path.

9) "Picket Fence" modulation of a VHF signal is caused by:
a. Multipath interference c. Sporadic E
b. Noise d. Ducting

10) Which of the following is least likely to cause attenuation of microwave signals?
a. Rain c. Glass
b. Green foliage d. Fog

11) True or False?
a. T F UHF communication is restricted to line-of-sight paths.
b. T F All 160-meter contacts are made by ground wave.
c. T F VHF Receiving antennas should have the same polarization as the transmitting antenna.
d. T F Storms and cold fronts are good indicators that long-haul VHF contacts may be possible.

12) The ionosphere often reflects signals in the direction of the transmitting station as well as along the intended path. This reverse-direction propagation is called:
a. The inversion layer c. Backscatter
b. Spin modulation d. The Doppler shift

13) Stations too close for sky-wave and too far for ground-wave contacts are said to be in the:
a. Doughnut c. Twilight zone
b. Skip zone d. Diffraction zone

14) The distinctive warble of signals propagating near the magnetic poles is termed:
a. Polar flutter c. Spin modulation
b. Stratwarm d. Birefringence

15) The terminator at the division between the sunlit and darkened halves of the Earth gives rise to what type of propagation path?
a. Polar c. Long
b. Skew d. Gray-line

Bonus! In what year did transatlantic two-way communication first take place between amateur stations?

Total Your Score!

Give yourself 1 point for each correct answer.

13–18 **You have a fine understanding of radio propagation. *Bravo!***

7–12 **You know enough to get by, but you'd benefit from a little homework.**

1–6 ***Ouch!* You're missing one of the most exciting aspects of radio!**

Answers

1. c—The F-layer is the highest that can reflect radio waves and is the most efficient at doing so.
2. b—Tropospheric propagation includes any caused by atmospheric phenomena.
3. d—The sound of a CW signal bounding off a meteor trail has a distinctive "pingy" sound.
4. d—Although it can occur on 144 MHz, the mode is most common on 10 and 6 meters during the summer months.
5. a
6. c
7. a—Chordal hops are less lossy because of no intermediate contact with the relatively poorly conducting surface of the Earth.
8. All—The MUF only has meaning for an entire path, so all of the hops encountered along the way must be able to reflect radio waves of the frequency used.
9. a—The term is derived from the rapid flutter, sounding like a stick being dragged along a picket fence. This is typically caused by a mobile station moving through a region of multiple, reflecting paths. The result is many closely spaced nulls due to destructive multipath interference.
10. c—Ordinary glass does not affect radio signals, while the other three all tend to attenuate them.
11. a—F—Many long-distance modes of propagation are possible at VHF and UHF.
b—F—Similarly, worldwide propagation is supported by ionospheric reflections on 160 meters during the hours of darkness.
c—T—In general, cross-polarization between a signal and an antenna causes significant signal loss at the receiver.
d—T—These strong phenomena often act as large radio waveguides and reflecting surfaces, resulting in excellent DX conditions at VHF and UHF.
12. c—This mode is useful for local contacts on the higher HF bands, where the ionosphere would not be able to provide the necessary vertical reflection.
13. b—On 10 meters, the skip zone can be hundreds of miles, resulting in strong DX signals with a complete absence of local signals.
14. a—This distinctive sound is a DXer's first clue to a long-haul station.
15. d—Lowered ionospheric absorption often allows enhanced signal strength for a short period as lower layers dissipate, while the higher layers remain illuminated by the Sun.

Bonus—1923 (November 27), between 8AB in France and 1MO and 1XAM on the American side of the pond.

The Red Cross in Italy is turning to ham radio as an official communications channel. The Italian Red Cross will activate its first ever amateur radio station in October under the callsign IZ4GQA. The pioneering new station is the brainchild of the radio communications department of the Italian Red Cross's Emilia Romagna region. The department had been looking for a communication tool that would provide wider coverage than existing radio networks, incur no fees and be capable of working in crisis and emergency situations. An amateur radio station appeared to be the perfect solution, but at the time the Italian Red Cross had never before been authorised to operate such a station. Not to be put off, members of the radio communications department obtained a copy of the official Italian amateur radio regulations and submitted a seven-page application for a licence to the Italian ministry of communications. The application was successful and the Italian Red Cross was given the green light to operate an amateur radio station. An Italian Red Cross spokesman said: "Now we can communicate on all ham bands, being able to connect Red Cross stations not only in our region, not only in Italy, but all over the world."

Role of hams after hurricane Katrina

For the first time, the nonprofit American Radio Relay League (ARRL) set up a website and database to facilitate assigning hams.

Pamela Taylor, who works as an events manager in Hampton Beach, N.H., got a call from FEMA and headed south on Sept. 9. She was deployed to a shelter in Ocean Springs, Miss., near Gulfport, before moving to New Orleans. The shelter was a church, well-supplied and maintained, with an abundance of volunteers. Her job was to radio for special needs, anything from a doctor to paper plates. Nights sometimes brought an emergency or two when a resident had to be removed, usually for alcohol or drug problems.

Hams worked with the National Weather Service before and during the hurricane. They still are receiving and transmitting messages in shelters and other locations, alerting emergency agencies that a community needs water, that an elderly woman needs an ambulance, or that sanitary conditions are in crisis.

An estimated 600,000 FCC-licensed amateur radio operators live in the United States; about 162,000 are members of the ARRL, which was founded in 1904 and is located here in Newington, Conn. Nearby Hartford is where Hiram Percy Maxim, the father of amateur radio, experimented at sending messages across the city and then relaying them across the country. Long before e-mail, there was amateur radio. It evolved over the last century so that today, ham operators communicate with one another around the world. Allen Pitts, for example, the ARRL's media-relations manager, says he has spoken to fellow hams in 213 foreign countries or "political entities."

That's the hobby part of hamdom. The serious and vital part is seen in the Amateur Radio Emergency Service (ARES). Trained ham operators are ready with their "go kits" of equipment, batteries, and energy bars. ARRL coordinates the work of the emergency operators. Hams were at ground zero in New York within hours, they were in Florida for the multiple hurricanes last year, and they handled communications in the Northeast blackout of 2003.

Hams are volunteers. When they set sail for disasters, they pay their own way. Sometimes employers give them a paid leave or reimburse expenses. Hams' sacrifices are real, but the rewards are often intangible.

Mark Conklin of Tulsa got time off as a sales manager for an appliance company to relay messages. At first he handled communications between the state department of emergency management and the highway patrol.

Next he was assigned to the 1,200 evacuees transplanted to an Oklahoma National Guard camp. At the camp, he talked to an elderly woman who was crying because she was happy - "communications" had been able to get a pair of glasses for her. "For the first time in a week," she said, "I can see

SSETI Express is the first pan-European student microsatellite, built by a distributed team of university students and radio amateurs throughout Europe (within SSETI), and sponsored by the Education Department of the European Space Agency (ESA). It is due to launch from Plesetsk, Russia, on the 30th September 2005. ress is scheduled to be launched on a Cosmos-3M launch vehicle from Plesetsk, Russia on the morning of the 30th September 2005 at 06:52:26 UTC. The main passengers of the launch will form part of the Disaster Monitoring Constellation from Surrey Satellite Technology Limited (SSTL). SSETI Express is flying as a "piggyback" payload on this launch. The launch flight will last a total of around 35 minutes, after which the Cosmos-3M launcher will inject SSETI Express into a sun-synchronous orbit with the following parameters.
