Radio ZS

Volume 62 No./Nr 2

Maart - April 2009
March - April 2009

Sideswipers and Crickets
The 4X4 Slimtenna
Amateur Radio in Space

Amateur Radio - Communication Technology in Action

SARL
ZS6SRL

Amateur Radio... Professional Technology

amateur• n. 2.a. one who cultivates anything as a pastime
radio• n. 1. the transmission and reception of radio-frequency electromagnetic waves

Amateur radio buffs are serious about their hobby and take professional pride in their equipment.

They want the best.

Multisource's best-of-breed supplier ICOM is considered throughout the industry as the worldwide leader in the development of amateur radio technology. In fact, ICOM was founded on amateur radio. It created its first commercial amateur radio, the all-transistor FDAM-1, a 1-watt, 6-metre mobile transceiver, in 1964. It was the first step in a journey which has taken ICOM all the way to its current pre-eminence. The company attributes the success of its diversified product lines to the RF and digital design experience gained from the development of the company's early amateur radio products.

The new ICOM technology that has represented each generation has substantially contributed to amateur radio's technical development history, and ICOM has grown to become the top manufacturer of amateur radio communication equipment in the world today, as well as a manufacturer of integrated communication equipment.

It may be a hobby, but from its beginning, amateur radio operators have made significant contributions to science, engineering, industry, and social services. It's not surprising that they want the best...

Multisource provides only the best.

Analogue quality, digital liberation...

ICOM

D-STAR ...The star performer!
IC-2820H and IC-92AD
(VHF/UHF Dual Band) with GPS

D-STAR

Outstanding Features – Convenient Operation

We provide our customers with cost-effective, value-added sustainable solutions for specialised wireless connections – and we do so through stable, long-term, reliable partnerships with our product providers.

www.multisource.co.za

Your single connection for specialised **wireless solutions**

multisource
Your Single Wireless Connection

South African Radio League
Suid-Afrikaanse Radioliga

RADIO ZS

March - April 2009 Volume 62 Number 2

Published by the S A Radio League
Uitgegee deur die SA Radioliga

PO Box / Posbus 1721
Strubensvallei 1735
South Africa / Suid-Afrika

Telephone / Telefoon
011 675 2393
Facsimile / Faksimilee
088 011 675 2793
Email / E-pos
admin@sarl.org.za &
secretary@sarl.org.za
Website / Webwerf
www.sarl.org.za

SARL News Bulletins
SARL Nuusbulletins
Sundays / Sondae
08:15 CAT Afrikaans
08:30 CAT English

HF	20 m, 40 m, 80 m	HF
VHF	2 m and 70 cm	BHF

Address for news items
Adres vir nuusitems
www.sarl.org.za/newsinbox.asp

Amateur Radio Mirror International
Sundays 10:00 CAT Sondae
17,590 and 7,205 MHz AM, 7,082 MHz SSB, 2 m and 70 cm FM, Echolink by ZS6FCS, www.sarl.org.za, click on ARMI and follow the links

Mondays / Maandae
21:00 CAT - 3,215 MHz

Editor / Redakteur
Dennis Green, ZS4BS
zs4bs@netactive.co.za
radiozs@sarl.org.za

Afrikaanse Taalversorging
George Honiball, ZS6NE

Front Cover / Buiteblad

During the Boland ARC meeting on Saturday 6 December 2008, Dennis Wells, ZS1AU, presented the Len Wells Ham Spirit Trophy to Rassie Erasmus, ZS1YT. The certificate tells why Rassie received this award.

Tydens die Boland ARK vergadering op Saterdag 6 Desember 2008 het Dennis Wells, ZS1AU, die Len Wells Ham Spirit Trofee aan Rassie Erasmus, ZS1YT, oorhandig. Die sertifikaat dui aan waarom Rassie die toekenning ontvang het.

SOUTH AFRICAN RADIO LEAGUE
SUID-AFRIKAANSE RADIOLIGA

SARL Council with Portfolios / SARL Raad met Portefeuljes

Rassie Erasmus, ZS1YT
President, Treasurer
President, Tesourier

Dennis Green, ZS4BS
Vice President, HF Manager, Contests, Radio ZS
Visepresident, HF-bestuurder, Kompetisies, Radio ZS
radiozs@sarl.org.za

Henry Chamberlain, ZS1AAZ
Secretary, Forum Enquiries, Digital Matters
Sekretaris, Forumnavrae, Digitale Sake
secretary@sarl.org.za

Fred Scheepers, ZS1FCS
Education, SARL Elmer and Technology
Onderwys, SARL Elmer en Tegnolgie

Ivan Newman, ZS2ILN
SARL Membership, SARL website
SARL-lidmaatskap, SARL-webwerf

Malcolm Kriel, ZS4SM
Youth, STARS, ARDF
Jeug: STARS, ARDF

Laurie Devereux, ZS5DL
Minute Secretary, IARU Monitoring Service
Notulesekretaris, IARU Moniteringsdiens

Hans van de Groenendaal, ZS6AKV
Public Relations, IARU Liaison, Bulletins, Technical Standards, Interference
Skakelwerk, IARU Skakeling, Bulletins, Tegniesestandarde, Steurings

Francois Botha, ZS6BUU
Hamnet, QSL Manager
Hamnet, QSL-bestuurder

Louw Erasmus, ZS6LME
Legal Advisor, Office Manager
Regsadviseur, Kantoorbestuurder

Mark Zank, ZS6YES
RAE Manager
RAE-bestuurder

Appointments/Aanstellings:

VHF/UHF Activities, Band plan and Repeaters
BHF/UHF-aktiwiteite, Bandplan en Herhalers

Webmaster / Webmeester
Richard Seddon, ZS2CLI

Awards / Toekennigs
Tjerk Lammers, ZS6P

Bulletins and Translations
Bulletins en Vertalings
www.sarl.org.za/NewsInbox.asp
George Honiball, ZS6NE, Gustav Snyman, ZS6BWN, Roger Conroy, ZR3RC and/en Dennis Green, ZS4BS

QSL Bureau / QSL-buro
Martin Harper, ZS6MSG, and/en Willem Weideman, ZS6WWJ

ARMI and Intecnet / ARMI en Integnet
armi@sarl.org.za
Hans van de Groenendaal, ZS6AKV
Laurie Devereux, ZS5DL

Administrator at NARC
Administrateur by NARS
Mariska Faasen
admin@sarl.org.za

Honorary Auditor / Ere-ouditeur
Kretzschmar Chartered Accountants and Auditors

In this issue / In hierdie uitgawe

South African Radio League National Convention
Cape Town 24-26April 2009

Saturday 25 April
Annual General Meeting
The SARL Annual General Meeting will be held at the Oakdale Sports Club, right next to the N1 and the position is easily recognised by the tower shaped like the Eiffel Tower. [GPS S33 52,896 E18 38,633] Registration will start at 08:00. Lunch will be available at the club.

Welcome to the fairest Cape, world famous for its beautiful scenery.

Three Amateur radio clubs in the Cape Area, Cape Town, Boland and Oakdale are hosting the 2009 SARL National Convention.

Win some attractive prizes at the Dinner. Every event you attend at the National Convention will increase your chances. See www.sarl.org.za

Friday 24 April 2009 - 19:00
A spit braai with all the trimmings at Barloworld Toyota Showroom in Durban Road, Durbanville [GPS S33 53,022 E18 38,157] not far from the Oakdale Club. Cost R95 per person.

Guests - Saturday Morning. Shopping spree at the Waterfront, leave from Oakdale at 09:15.

Afternoon events
15:00 Champagne cruise on the Tigresse, the largest sailing catamaran in Africa. The boat accommodates limited numbers, so book early. You cannot afford to miss the great experience. Cost R 110.00. Quay is at S33 54,275 E18 25,242

15:30 Alternative visit to Cape Town Radio.

Awards Dinner - 19:30 for 20:00
The SARL Annual Awards Dinner will be held at the Oakdale Sports Club,

(Continued on page 25)

CQ de ZS1YT

Nearly a year has flown past and it is now only a few days to go to the SARL National Convention and the SARL AGM in Cape Town on 24 – 26 April. It is also with great satisfaction that I can look back on my year serving as president of the SARL. Not only have we achieved outstanding results with the offered RTA and PIC programming lectures to our members and fellow radio amateurs, but also behind the scenes, we have engaged in beneficial communication and liaison with the relevant governmental organisations in South Africa such as the DoC and ICASA. We also achieved success on the international front with the IARU and ITU.

However, the most rewarding aspect as far as the SARL is concerned, is the steady inflow of new members to the SARL. Without great fanfare, we have reached the 1 400 members mark and by end of March it was already approaching 1 450. This is the highest membership since 2000! It is an increase of 20% since 2005!

During May we will see the first Class A RAE for 2009 being conducted throughout the country. Please lobby support for your hobby by convincing your non-amateur friends to join us in this wonderful hobby by writing the RAE and joining the national body for amateur radio in South Africa.

On the 16th of June, we will again be celebrating Youth Day. To ensure that amateur radio is not on the road to distinction, it is of cardinal importance that each and every one of us convinces the youth of South Africa to join in with our marvellous hobby. Please liaise with your local club(s) and take part in promoting amateur radio amongst the young and make suitable arrangements to entice them on this their day!

Ek vertrou dat ek baie van ons lede by die SARL-AJV gaan ontmoet. Dit is dié geleentheid op die amateurradiokalender wat u nie moet misloop nie. Die SARL-raad kan nie sonder u insette en ondersteuning die SARL effektief bestuur nie. Indien u nie die vergadering kan bywoon nie, versoek ek dat u die volmag gebruik en iemand sal nomineer om namens u u stem uit te bring sodat elke lid se stem ook gehoor kan word!

Dit was vir my 'n aangename jaar aan die stuur van die SARL en ek het my dan ook weer beskikbaar gestel om gedurende die komende jaar op die Raad van die SARL te dien waar ek glo ek 'n bydrae tot amateurradio kan maak.

Groete van hok tot hok,
73, Rassie, ZS1YT

Ham Pride
Our Legacies and Traditions

By Dave Ingram, K4TWJ

Timeless Treats: Sideswipers and Crickets

Several of our previous Ham Pride articles discussed the timeless use of CW and Morse code and describe some popular styles of keys, bugs and paddles. Two special types known as Sideswipers and Crickets were not included in those Ham Prides however, so we are proud to discuss them this time.

The origin of both Sideswipers (nicknamed Cootie Keys) and Crickets (also called Double Contact Keys) date back to the very early days of telegraphy. A Sideswiper's manually-operated and horizontally moving arm allowed an operator to send Morse code faster while eliminating carpal tunnel syndrome caused by the constant up/down motion of using a hand/pump key. This key was invented several years before the semi-automatic key or "Bug" and continues popular today among many CW-favouring radio amateurs. As I will explain later, it also has a second function CW devotees will find appealing. Cricket keys were used on early ultra-long overland and undersea cable lines. The long propagation delay in these cables made sending Morse code with a regular pump key impossible, so double keys connected to send dots of one polarity and dashes of another polarity were invented. Today, a number of amateurs enjoy occasionally using Crickets in place of their dual lever paddles for "change of pace" CW operations.

A Sideswiper or Cootie key is a manually operated key that looks like a Single Lever Paddle, but its left and right contacts are connected together rather than wired to separate dot/dash terminals or binding posts. Rather than sending dots by moving the key's lever right and dashes by moving the lever left like using a paddle, you send both dots and dashes with alternating left-right movements of the lever. An electronic keyer is not used with a Sideswiper. All timing and spacing is made by the operator's hand movements. As an example of use, you would send "OH" with three long left-right-left lever moves followed by four short right-left-right-left lever moves. The technique seems unusual but it is fun to practice and ideal for communicating during poor band conditions. That is because you can instantly change dot-dash length and weight. There is a sec-

(Continued on page 8)

(Timeless Treats from page 7)
ond benefit. By rewiring a Sideswiper's left and right contacts to separate binding posts it can become a Single Lever Paddle. In addition, operators with shaky fingers find using a single lever paddle easier and more accurate than using a dual lever (iambic) paddle. That is because it has only one lever and that lever can only move one way at a time.

Crickets are similar to two hand/pump keys on one base, and they can be wired to become a dual lever/iambic paddle with vertically moving levers. Musicians and "table top tappers" often like to use Cricket keys. They are an entertaining change of pace from regular paddles, and they are often beneficial when an uncomfortable wrist/paddle angle makes sending CW challenging.

Most importantly, both Sideswipers and Crickets are marvellous little items of telegraphic history you can hold in your hand, use "mix-and-match" style with your other keys on the amateur radio bands today and pass on to future generation amateurs later in time. In doing so, you play an important role in ensuring our proud legacies and traditions live on throughout the annals of time. Yes friends, it is the keys that makes operating CW so enjoyable year after year!
73, Dave, K4TWJ

Photo 1 Bruna Begali, daughter of key producer extraordinaire Pietro Begali, I2RTF, introduces their new "HST" combination Sideswiper and single lever paddle. Details at www.i2rtf.com. E-mail: bbegali@gmail.com

Photo 2 close up look at the new Begali HST shows the switch for selecting its Sideswiper or single lever function, its gold-plated adjustment screws and hardened stainless steel contacts. Key handles great at both low and high speeds.

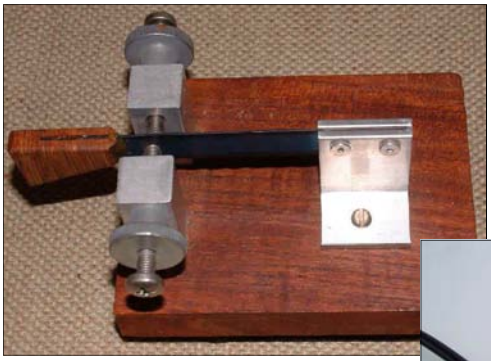


Photo 3. A number of amateurs use a hand-cut wood base and finger piece, metal angle brackets and pillars plus steel screws and a hacksaw blade to home-assemble their own Sideswipers - and they work good. Average length of hacksaw blade from bracket to finger piece is 3,25 inches for best "feel."

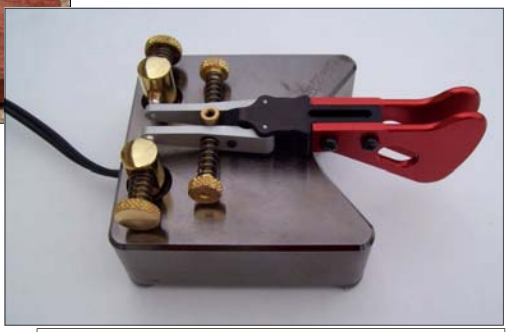
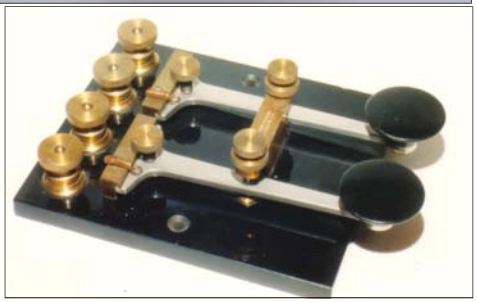


Photo 4. A single lever CW paddle like this popular Begali "Simplex Mono" version can be converted to Sideswiper function by clip lead connecting its left and right contacts together. Alternately, a stereo-to-mono adapter plug installed between paddles' plug and transceivers' socket will change paddle to Sideswiper.

Photo 5. One of the first versions of commercially produced Cricket keys is this J. H. Bunnell item of the late 1800s. It is akin to two hand-pump keys on a single base. This is a piece of history you can hold in your hand.



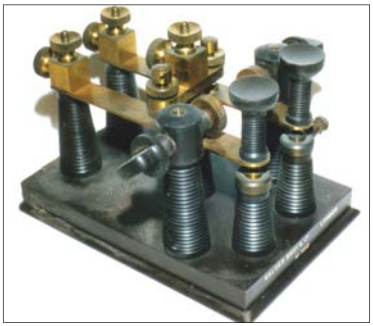


Photo 6. This rare and unique Cricket key was made by the Nalder Brothers Company of England and was one of the very first British Cricket keys. Each lever has spring leaf-type arms plus adjustments for gap and tension. Imagine wiring it for operation with an electronic keyer and using it on the air today. Wow—what a thrill!

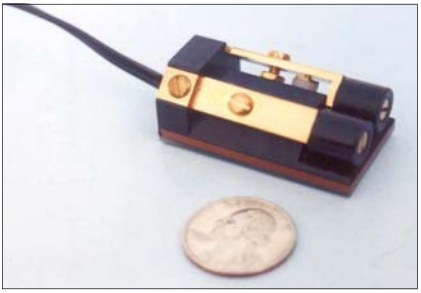


Photo 7. DK1WE of Germany makes this Cricket/iambic "Squeeky" paddle, and its 45-degree-angled arms make sending CW from unusual positions quite enjoyable. Note round finger pieces for vertical, horizontal or angled operation. Details at www.morsekey.com. E-mail inseco.wenk@t-online.de.

The 4X4 Slimtenna

By Eli Kovo, 4X4LH

A Reprint by Courtesy of antenneX Online Magazine
issue Number: 119 http://www.antennex.com

Some of us prefer to spend a lot of money on towers, enormous in height and price, with lots of elements antennas and on top of it using the highest legal power. The rest of us, that have to deduct hard earned money from the family budget, have to make some delving in the intricacies of efficient transmitting, propagation problems and its many ingredients, if we want to still enjoy our hobby. It seems that today's Hi tech brought the hobby to a discouraging state - we do not build receivers and transmitters any more and on the operating side of it – an endless chasing of DX for a report and a QSL, which does not seem to be the highest goal of our hobby.

What is left to us is indeed, directing our efforts in better understanding the proper use of antennas, evaluating their radiation efficiency, getting to know the fouling behaviour of the ionosphere, along with better differentiating between dBi, dBd, dB, etc. and even find out what Radiation resistance is.

After long years of thorough combing the literature, internet and other sources of information, along with building and using many different antennas, I came to the conclusion that one of the best ways to reach efficiently a distant station for a QSO of not less than 10 - 20 minutes, is the use of vertical antennas with no more than 150 - 200 watts.

In spite of some "great sages" saying that "a vertical antenna transmits equally bad to all directions," my present "antenna of the house" is a pile-up busting full wavelength wire Delta Loop, vertically polarized. I realized that the 1/4 wavelength ground plane antenna and the 5/8 wavelength antenna needing a good "mirror" underneath, are good choices on top of a car's metal roof, but will put you in jeopardy with your wife's garden and the lawn mower, if you try to bring them into your home station for HF.

I also realized that although a three or four element Yagi beam concentrates its power in a narrow horizontal pattern, its vertical "take off" suffers from a high radiation angle of 30°, loosing a lot of dB's in excessive number of hops to the ionosphere, while a good vertical monobander reaches the DX with less hops, with almost the same strength!

I further discovered that following the request of amateurs looking for a single knob (main's on/off) "no tuning" transceiver, made the manu-

(Continued on page 11)

(Slimtenna from page 10)
facturers provide rather compact transceivers but without any way of antenna tuning and loading. Instead - promoting an external ATU to be added to the paraphernalia of the station with, of course, additional expenditure. It happens also because of the wish of amateurs and in many cases their necessity to use one single antenna for as many bands as possible no matter how bad the transmission is. Here lays one of the misunderstandings of many members of our fraternity. When feeding a dipole with its basic frequency it was built for, we get its basic well-known clean pattern. Using the same dipole length on other frequencies with an ATU as a mediator, correcting wrong impedance, reactance and SWR for the TX to be happy, BUT:

1) The antenna will not provide the length the wave is looking for, according the rules of Physics.
2) The clean basic pattern of the dipole is distorted into many additional lobes because of the main lobe.
3) The low take off angle desired for DX is elevated (to warm the clouds), causing more hops on its long way to the DX station.
4) The radiation efficiency becomes so low that out of our 150 watts only 15 poor watts get out on the air.
5) The ionosphere, acting as a mirror, absorbs some of our signal as a "payment for its services," swallowing 8 - 10 dB (for each hop) of our miserable signal, arriving at the DX station with less then 1 watt.

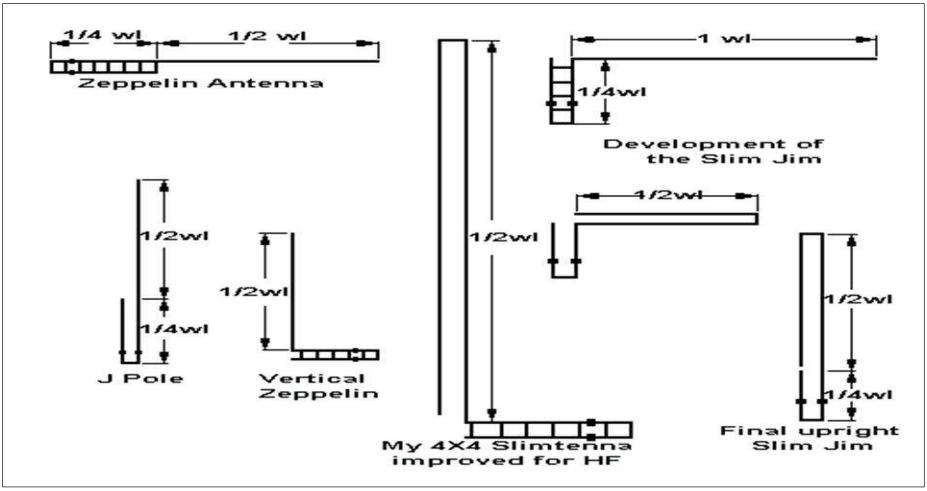
A correctly transmitting antenna is the best "amplifier" I know. A 3 dB gain doubles the power of your signal and a 6 dB quadruples it. Your 150 watts is sent out as 300 watts! Add the equivalent gain of low take off angle transmission (less hops) and you are better off than a kilowatt!

I brought this long preface for my hobby fellows, pointing out some of the pitfalls. If we get aware of them we will benefit by better understanding of the how's and why's of antennas and enhance our station performance. This will hopefully encourage us to build and use simple, cheap and efficient, low take off angle monoband verticals.

Here comes my modification of the Slim Jim antenna, which I call "The 4X4 Slimtenna."

The esteemed Slim Jim antenna was invented by Fred Judd, G2BCX, based on the J Pole antenna, which was based on the German Zeppelin antenna. This one was an endfed dipole, fed by a 1/4 wavelength open wire ladder section, hanging out beneath the big airship. It was actually invented by an Austrian engineer in 1908 intended for use in balloons in a suspended mode. Niels Rudberg, OZ8NJ, found this astounding fact in an old textbook published quickly in the same year by Dr. J. Zenneck, Professor of Physics in Munich (RadCom June 2006).

(Continued on page 12)



Picture 1. The Zepp and J Pole, the development of the Slim Jim and its upgrade for HF - "The 4X4 Slimtenna"

(Slimtenna from page 11)

Both J Pole and the Slim Jim inventors kept its ¼ wavelength matching section in line with the ½ wavelength long antenna, e.g. a half wavelength plus another quarter wavelength. Beneath a balloon or a dirigible, this was a fine and suitable arrangement as the antenna and the matching feeder were rolled out at lift off from a drum and rolled back when landing. It is certainly difficult for the radio amateur to cope with these enormous lengths if he wants to use it as a vertical aerial on the HF bands. This is probably the reason why these fine antennas were confined mainly to VHF.

This type of feed can be in line with an endfed antenna or can be bent 90° to it. Both J Pole and Slim Jim can be put up vertically for HF - easier, if the feeding section lays near the ground or the roof. I will refrain discussing the J Pole, as it does not offer more than an endfed half-wave dipole.

On the other hand, the Slim Jim is one of the very good antennas offering a good radiation efficiency - having:

a) A driven element that combines the "efforts" of two half waves in phase, in a rather restricted space with about 3 dBd gain and an unbelievable 8° take off firing angle towards the horizon - almost parallel to ground!

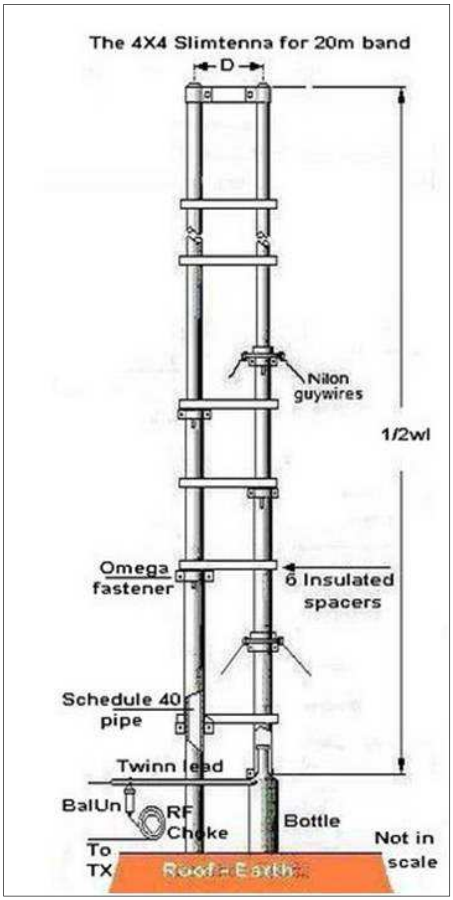
b) Its overall height is no more than half wavelength.

c) No need at all for (repulsive quantity of) radials to substitute a missing length for our wave to ride on (unlike the ¼-wavelength ground plane searching underneath for its "lost" other ¼ length, lifting its lobe up to Heaven for help… A pitiful

(Continued on page 13)

(Slimtenna from page 12)
scene).

Although building verticals for HF is easiest for 10 metre band, we will plunge into building it for 20 metre band and find out it is not out of the reach of the radio amateur both financially and mechanically. (See picture 2)



Picture 2: An overall and detailed view of the components included in the 4X4 Slimtenna

Picture 3: The omega clamps and a flange at 4X4LH's roof

The height of the whole thing is 10,5 metres. Each leg is made out of 2, 3 or 4 pieces of aluminium pipe fitting in diameter. Starting with a bottom size of 1,5 inches [3,81 cm], the upcoming pieces go into the lower one for at least 10 inches [25,4 cm]. If the pipes do not fit snugly, use a piece of aluminium beer can as a shim. I carried a magnet to the grocery shop to find the aluminium ones – the others will rust quickly. The steak I ate was happy with the beer and the pipes were happier with the shims inserted.

At the upper end of each section cut a double slot to clamp the next pipe. Fastening is done by using 2 omega clamps in each place. I do not rely on hose clamps to hold this weight and mechanical stress (See picture 3).

Use the same size of stainless steel ¼ inches (6 mm) screws, washers and nuts all the way. It pays back with time! Also, when doing the works you will have to

(Continued on page 14)

(Slimtenna from page13)
carry one single size wrench.

The main fed element rests on a bottle, which is a very good insulator. The other leg is a bit shorter e.g. minus the distance D, and may stay on a proper size and length of Schedule 40 PVC pipe which is also a good insulator.

Prepare 6 Plexiglas (or other) spacers. I leave their design purposely to your ingenuity, as long as their size is in accordance with the table of widths below, (table 1) and as long as they keep the two elements parallel. Place them at even distances along the antenna. Remember that the upper pipes get thinner but D stays the same. I do not go into details not wanting this article to look as if taken out of a cook book (hi).

Try to find in your plumber's shop 2 strong aluminium or plastic flanges with 3 or 4 holes and insert them at 1/3 and 2/3 height from the bottom for the nylon guy wires. The same type of omega clamps supports these flanges underneath without drilling any holes in the pipes (see picture 3.)

The uppermost ends of the two elements are tied together (electrically) by a ½-inch wide aluminium strip, embracing both pipes and fastened tightly with above suggested type of screws. Do not forget to cap the pipe's ends against rain with anything convenient.

Use some help to lift the whole thing and tie it securely to all tie points you prepared in advance. I personally never tie more than one guy wire to the same tie point, just to be on the safe side. If a tie point gets loose and out of its place, holding more than one guy wire may cause the whole structure to fall.

As with every good antenna,

(Continued on page 15)

Table 1: A table for distance D between the two half waves in centimetres and for other bands

5,48 / Frequency in MHz	Distance in metres	Distance in centimetres
5,48 / 3,6	1,52	152
5,48 / 7,1	0,72	72
5,48 / 14,2	0,386	38,6
5,48 / 18,1	0,302	30
5,48 / 21,2	0,258	26
5,48 / 24,9	0,220	22
5,48 / 28,5	0,192	19,2
5,38 / 50,1	0,109	11
5,48 / 145	0,03779	3,8

(Slimtenna from page 14)

this one is also vulnerable to nearby objects like walls, metal structures, trees, etc. They shift the predesigned frequency, usually lowering it and distort the expected pattern, so try to be in the clear.

The right sequence for adjusting the antenna (any antenna) is to resonate it by achieving minimal SWR on the preferred frequency, first by taking care of its length, then with the feeding. Use your SWR meter while your TX is on AM and adjusted for minimum readable power output. By making a graph, like the one below, checking the SWR every 100 kHz (See picture 5), you will be able to decide whether the antenna is too long or too short. The adjustment is done usually on the shorter leg, where the gap was, but in some cases also on the main leg.

Feeding a high impedance vertical could be done by a coil and a tap for the coax, but such a coil has its own many requirements (Q, diameter, number of turns, rain cover etc.) and may radiate by itself. This is why an easier, preferred feeder of lossless open wires is used, where current in one wire is out of phase with the current on the other, ensuring no radiation from it. A ¼-wavelength section of 300Ω Twin lead solves our problem nicely. Its far end shorted, twisted and soldered. One conductor of the Twin lead connects to the bottom of the main element by a hose clamp, while the other wire is left unconnected. Keep the Twin lead away of ground at the height of the bottle insulator. The necessary impedance of that specially designed for one single band ¼ wavelength matching section, is found out by a very simple formula for matching two (very) different impedances:

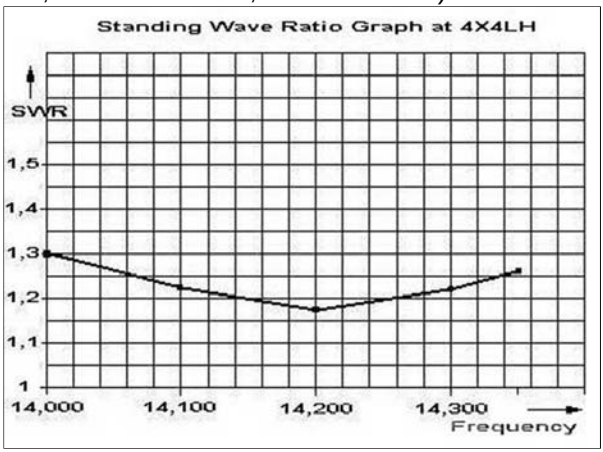
$Zmatch = \sqrt{Zant \times Ztx}$

The bottom end of the Slimtenna presents estimated impedance near 1 500Ω, which I could not actually measure. Adding it to our formula looks like this

$= \sqrt{1500 \times 50} = \sqrt{75000} = 273.86\Omega$

A good quality 300Ω Twin Lead will be near enough for that matching purpose of ours.

(Continued on page 18)



Picture 5: On a math textbook sheet, mark frequency and SWR co-ordinates

DM-330MVE

Power supply of the next generation

Special at only R1 600

Popular DSP Nois
features, ideal for
tures power on/off

high efficiency

switching technology

MP

E
ra

- The DM-330MV comes with short circuit protection, a current-limiting system and extreme temperature protection.
- The programmable pre-set voltage function makes the DM-330MV even easier to use. Just store the most frequently used voltage in the memory
- A cigar-plug socket (Max 10 A), a set of Max current terminals, and 2 sets of snap-in terminals (Max 5 A) are conveniently laid-out.
- A big, highly visible, back-lit Amp/V meter displays the status of the operation for added convenience.

ICOM IC-2200H 65 w 2 Metre mobile with D-Star capability

A MOS-FET power amplifier

provides 65 w output power

DIAMOND SWR ME

SX-100 1.6 - 60 M

SX-400 140 - 525

Incorporates the latest Digital Signal Processing (DSP) technology. SPECIAL AT R1 400

se cancelling speaker with many amateur radio. The MK II fea- switch with audio bypass.

MFJ – 962 D

HF 1500 Watt Antenna Tuner w/

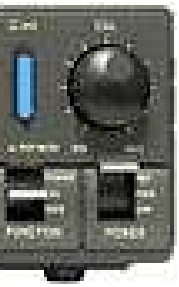
FJ-914 Tuner Extender

R450

xtends the ange of any tuner

features the MFJs AirCore Roller Inductor

CALL FOR THE BEST PRICE IN TOWN



ETERS

MHz

MHz

Radio Accessories & Data Modems

9 Carnation street Gallo Manor

P O Box 691 Gallo Manor 2052
South Africa

Tel +27 (0)11 802 2976

Fax: +27((0)86 615 3597

Email: radioacc@telkomsa.net

(Slimtenna from page 15)

One more thing to be done is finding the real length of that ¼-wavelength section. We will have to take into account the slowdown speed of our wave, caused by the plastic insulation covering the conductors of the Twin lead. Enter Velocity factor. For Twin lead it is about 0,73, while, for instance, for coax cable it goes down to 0,66. We will have to multiply the ¼-wavelength of our matching section by that Velocity factor (0,73) which means actually shortening the way our wave has to travel. To do that we have to decide what our working frequency is – say 14,200 MHz:

Wavelength in meters = 300/F MHz

300 / 14,200 = 21,12 metres, but we need only the ¼ of it, so

21,12 / 4 = 5,28 metres, now times "Velocity factor"

5,28 x 0,73 = 3,85 metres of Twin lead

This is the length of the Twin lead to be used to feed our Slimtenna. Not very difficult.

Pierce the insulation of the Twin lead at a distance of 40 inches [101,6 cm] from the cold end and connect two alligator clips attached to the feeding coax end. You will probably need to do some more piercing until you find the points of lowest SWR. As it is clear that Twin lead is after all a balanced component, attaching it to an unbalanced coax cable necessitates the use of a 1:1 Balun, connected to the points you found, with minor moving back and forth for fine tuning. If you happen to only have a 4:1 Balun, you can use it instead, by looking for the right connection points (200Ω) further on along the Twin lead, closer to the antenna leg.

Finally yet importantly – from the upper end of the coax cable make a coil of 8 turns (close wound) with a diameter of about 8 inches [20,32 cm], without cutting it. You can wrap it on an 8 inch [20,32 cm] plastic coil form ("borrow" a cake form from your wife) or have it air wound. Fasten it in such a way that it looks like a coil and remains like that. This device will prevent the outer side of the coax braid from joining the gang, turning into an antenna by itself, while the inside stream of current is unobstructed. This phenomenon is called "Common mode currents," meaning - currents flow on the external side of the coax braid during transmission. In common mode language it is simply an RF choke preventing your joyful SSB gurgles from appearing on your "lovely" neighbours TV, Hi Fidelity, computer, wireless phone, toaster, etc., etc.

Make one last check for the lowest SWR – 1.2:1 is very acceptable and you can now solder the Balun wires to the Twin lead and cover all vulnerable joints with hot glue, RTV, etc.

This 4X4 Slimtenna, if adjusted properly and operated correctly as a monoband vertical antenna, will turn out to be your "pileup-buster of the house" – try it!

My best wishes for a good luck with this fine project – 73 de Eli,

(Continued on page 19)

(Slimtenna from page 18)

4X4LH.

Reference:
Y21BK - Karl Rothamel "Antenenbuch" Telekosmos Verlag 1984
W4RNL – L.B.Cebik
W7EL - Roy Lewallen
The ARRL Antenna Compendium
Radio Rivista dell ARI
RadCom RSGB Magazine
RSGB – Radio Communication Handbook 5th Edition 1976

Eli Kovo 4X4LH obtained his license in 1958. At last, officially, he could switch on his long awaiting homebuilt TX (2 807's modulated by 2 807's). Ever since, he is active on the bands, striving for better gear and antennas. He was a Technical Supervisor in the Israeli Radio and after a scholarship at Thomson College in Scotland; he became one of the founders of Israeli Television in 1968, rising to the post of Head of the Outside Broadcasts Dept. Now retired but still searching for better antennas for his amateur station and building them if possible.

e-mail: elikovo@netvision.net.il
Eli Kovo, 4X4LH, 5 Carmel str., Jerusalem 90805, Israel

Amateur Radio in Space

By Eddie Leighton, ZS6BNE

This column started in the last issue of Radio ZS. Much has happened since, as far as space communications go. A highlight was the **I**nternational **S**pace **S**tation's Cross band repeater, which is an ongoing attraction amongst South African radio amateurs, and newcomers can be heard on the downlink, every day. The SARL Internet Forum was and is used extensively to keep in touch showing results and many making suggestions to increase effective communication via the ISS's Cross band repeater.

The repeater was configured for a downlink frequency of 145,800 MHz FM and an uplink frequency of 437,800 MHz FM. These two frequencies are valid for about two minutes of an odd 10-minute pass and Doppler adjustments are imperative for clear signals. With the uplink on 70 cm, one needs to tune as low as 437,790 MHz in the beginning and up to 437,810 MHz towards the end of the pass. It is not always easy to know exactly what it should be especially on a very busy channel without much chance of testing before a QSO takes place. The frequencies could change within seconds too, especially as the ISS passes the maximum elevation point. Nevertheless, successful communications do occur regularly. (The ISS Cross band repeater was shut down on the morning of 10 March 2009 for necessary ISS operations.)

An important point is that voice procedure needs to be efficient. There is no time to pass too much information or rag chew and can be

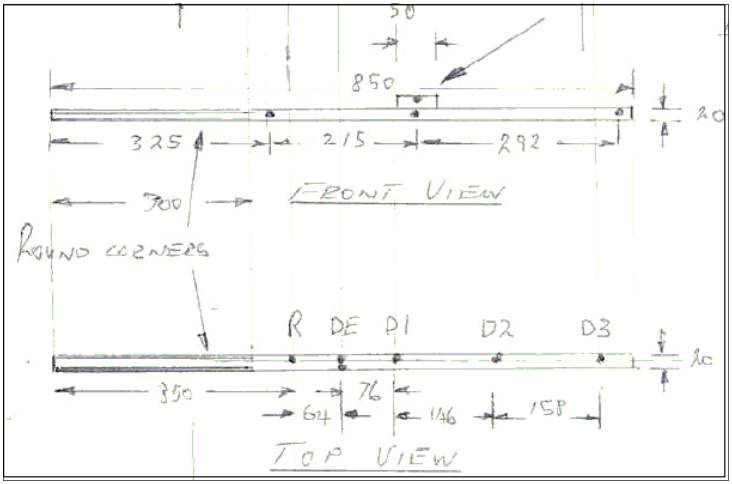
(Continued on page 20)

(Amateur Radio in Space from page 19)
quite frustrating to other radio amateurs wanting to make contact on an already busy channel. Even if a grid location is passed, it should be limited to four digits only. The requirements for a successful QSO are reports both ways, call signs of course and a final 73 to end the QSO. Not much more needs to be passed. Since this was introduced on the SARL Internet forum, the throughput of QSOs increased dramatically! This is vitally important especially when DX stations can be worked on land and at sea. DX normally takes place at very low elevations and the time frame is small. Imagine missing a rare DX contact because a grid square was repeated on request over and over for example. The opportunity is missed, never to be repeated!

In the last issue, I mentioned that we would look at getting a setup going to work the FM LEO Sats and the ISS. The most important is the antenna and that can be simple or as complex as you would like to make it. In this issue, I will discuss building your own homebrew hand held "Arrow compatible" antenna. There are many other designs but this one is very practical, especially for newcomers to the satellite scene.

Your very own handheld antenna – Build one for a friend too!

Go down to the hardware store and buy a length of pine "Cleat." The size is exactly right for our purpose (20 mm x 45 mm x an odd 3 m). Have them slice the length, down the middle, giving you two lengths of +- 20 mm x 20 mm pine. You will use these lengths for the hand held dual band Yagis. About eight booms can be made from a single "Cleat" length. The cost is an odd R 40, R 5 per boom! The boom will carry both Yagis.



Cut the boom lengths to 850 mm. Mark the drilling points according to the hand drawn diagram below. Note the 70 cm and 2 m Yagi antennas are 90 degrees to each other:

(Continued on page 21)

(Amateur Radio in Space from page 20)

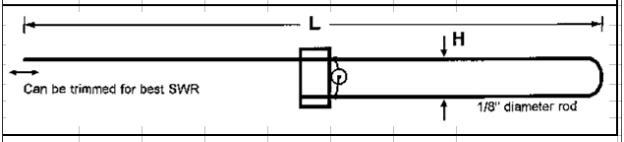
Use a small drill press and drill 3,2 mm holes for the elements. The holes should be in line down the centre line. Drill at reasonably high speed with a sharp drill for higher accuracy. I have found the drill bit follows the grain of the wood otherwise, resulting in a skew element! The hole has to be drilled correctly, first time, it cannot be redrilled.

The element cutting / bending details for the 70 cm antenna are as follows:

70 Centimeters

Driven element dimensions are L = 13.0" and H = 1/2" Elements are 1/8" (3.1750 mm) diameter.

				330.20	12.70	mm	



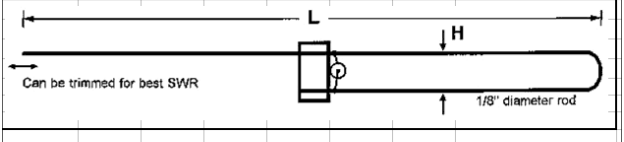
435 MHz AMSAT		REF		DE	D1	D2	D3	D4
Inches	Length	13.40	*		12.40	12.00	12.00	11.00
	Spacing	0.00		2.50	5.50	11.25	17.50	24.00
Millimeters	**Length**	**340.36**	*		**314.96**	**304.80**	**304.80**	**279.40**
	Spacing	**0.00**		**63.50**	**139.70**	**285.75**	**444.50**	**609.60**

The element cutting / bending details for the 2 metre antenna are as follows:

2 Meters

Driven element dimensions are L = 38.5" and H = 1.0" Elements are 1/8" (3.1750 mm) diameter.

				977.90	25.40	mm



144 MHz AMSAT		REF		DE	D1
Inches	Length	41.00	*		37.00
	Spacing	0.00		8.50	20.00
Millimeters	**Length**	**1041.40**	*		**939.80**
	Spacing	**0.00**		**215.90**	**508.00**

I have built many of these antennas and they all worked well. The design here is quite light, which is ideal. I have built heavier antennas but they are not practical, it can become quite tiring holding an antenna in the air for 15 minutes if it is too heavy!

The nice thing about this antenna is that there is no fancy matching system! You solder the coax directly to the driven element as shown in the diagrams above. Note where the centre conductor and braid are connected.

I have always used brazing rods for the elements. They are easy to solder and to bend. Note, very sharp bends will cause the rod to break easily! Use a wooden dowel rod, PVC conduit or anything you have on hand to bend the driven element loops. Make the bend slowly; allowing the metal to bend, bending too fast will surely break the element in two. Brazing rods can be expensive, aluminium could also be used but you would have to find a method of fixing the coax to the driven element. I have seen the terminals from terminal blocks been used for this purpose.

Cut the elements to length and fit them to the boom through the drilled holes. They should have a tight fit. Centre the elements and mark either side of the

(Continued on page 22)

(Amateur Radio in Space page 21)
boom with a permanent marker. (If you need to dismantle for transport, it is easier to centre the elements again or to see if they have accidentally moved!) Mark them beforehand if you wish. I drew a template on a piece of paper; it is easier to measure the elements this way, especially the driven element! Talking of the driven element. An additional wooden block needs to be glued to the boom to hold the driven element loops in place, for both the 70 cm and 2 m driven elements.

Working the FM LEO Sats

AO-51 and **SO-50** are both FM spacecraft. (AO-51 can be configured for SSB too) Although an exception to the rule, FO-29 has been worked on FM too. AO-51 and SO-50 have weak signals so the hand-held Yagi mentioned above will assist you greatly in being able to hear the signal. On the uplink, a simple FM hand-held running 5 Watts into a 5/8th is effective although the Yagi will make things even better!

AO-51 it configured according to a schedule. It is best to look at this schedule to plan your QSO times and frequencies. The monthly schedule can be accessed via the Internet at the following URL www.amsat.org/amsat-new/echo/CTNews.php

Detailed operation info on the SO-50 satellite

To switch the transmitter on, you need to send a CTCSS tone of 74,4 Hz. The order of operation is thus: (allow for Doppler as necessary)

1) Transmit on 145,850 MHz with a tone of 74,4 Hz to arm the 10-minute timer on board the spacecraft.

2) Now transmit on 145,850 MHz (FM Voice) using 67,0 Hz to activate the repeater within the 10-minute window.

3) Sending the 74,4 tone again within the 10-minute window will reset the 10-minute timer.

CU on the Sats! 73

Technology and Science – a two-way street

Hans van de Groenendaal, ZS6AKV

The terms science and technology are often linked, but in fact, they are quite different concepts. Broadly speaking, technology involves the development of tools. The modern radio transceiver, a complex combination of hardware and software, is a product of technology, but so is a hammer. Science, on the other hand, involves the pursuit of a better understanding of the physical environment, not just on our small blue planet but also in the entire cosmos.

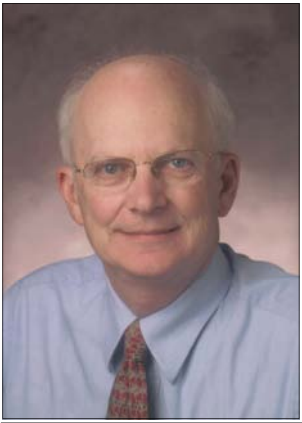
Dave Sumner, KIZZ, the Chief Executive Officer of the American Radio Relay League (ARRL) puts it this way: "When we think of the relationship between science and technology it is usually in terms of the latter. Scientific advances give us the ability to make better tools.

(Continued on page 23)

(Technology and Science from page 22)

Tools usually mean hardware, but not always."

He says the most exciting improvements in modern day transceivers come from software, particularly software defined radios (SDR). Software may be a purely intellectual product, but the ever-increasing capabilities of software that we have come to expect depend on faster microprocessors and cheap and abundant data storage devices that are among science's end products.



David Sumner, K1ZZ: "By collecting propagation data more comprehensively we can contribute not only to the science of radio propagation but to environmental science as well."

However, what about the contribution that technology can make to science? What can Radio Amateurs do with their ever-more-sophisticated hardware and software to contribute to human understanding of our physical world?

Dave Sumner says that there is no doubt that radio amateurs currently possess the world' largest pool of experience with radio wave propagation. This is particularly true of ionospheric propagation, which has not been of much commercial interest since the widespread deployment of communication satellites.

He says that Military interest also waned although that trend may have begun to reverse while Academic curiosity trends tend to follow research grants, which have been flowing in other directions.

One natural focus of amateur's interest is on trying to improve the ability to forecast propagation conditions.

It is interesting to note that in the early 1920s, the ARRL organised "fading tests" in which radio amateurs were asked to observe and report on the nature of fading on shortwave signals. The results of these test contributed to the understanding of the influences on shortwave propagation.

In South Africa, Radio Amateurs are currently working with the Hermanus Magnetic Observatory to correlate propagation predictions with actual propagation of signals. A frequency of 7 023 kHz was chosen. During the initial trial last year, a few automatic beacons were installed to evaluate the performance of the transmitters, timing devices and antennas. One or two of the pilot units are still on the air. A lot was learned from the initial pilot, the beacon design, timing circuits and antennas have been adapted and the unit will be installed later this year in up to 30 locations in South Africa.

During the pilot phase with only a few beacons operating around the country, some unusual propagation

(Continued on page 24)

(Technology and Science from page 23)
paths were recorded which will be further investigated when the full blown project takes off.

Physics students from Rhodes University will be spending time at the HMO and work on methods of correlating the physical results with the actual reception reports from the various beacons.

During 1957 - 1958 International Geophysical Year (IGY), several amateurs collected data on VHF propagation with the emphasis on ionospheric scatter.

Over decades, sporadic E propagation events have been exhaustively analysed by amateurs in an effort to find a correlations with other natural phenomena. The quest continues for an understanding of what cause the clouds of intense ionisation to form the E-layer.

"We know that the protective "bubble" that surrounds our planet and makes life possible is constantly changing in countless subtle ways," Dave Sumner said. "The history of Radio encompasses just a fraction of the span of scientific observations of the sun and of environmental conditions here on earth." He challenges the amateur radio community to collect propagation data more comprehensively and accurately than every before. "By doing so we can contribute not only to the science of radio propagation but to environmental science as well."

The SARL is heeding his call and has taken the lead... Are you?

From Wireless to Radio: Bridging the Gap

History, Experiments and Facts for Enthusiasts of all Ages

By John R. Hough, G0KRR

Review by Dennis Green, ZS4BS

I have really enjoyed reading this book, here is a book that explains radio in layman's terms. And then there are various experiments you can (and must) try out. No, you do not need piles of components, a lot you will find in your junk box and then a visit to the local hardware store and electronics dealer for a few items. In some of the experiments, you use items you built in previous experiments and add a few components. Various safety aspects are discussed in the book.

The book, some 355 pages, is divided into 3 parts, plus an index and glossary.

Part 1 - Wireless Experiments, Ancient and Modern, has 14 chapters starting off with the beginning of communications using light - sunlight reflected off a shield, smoke signals, semaphore flags, the heliograph and the Aldis lamp. We are taken on a journey to the digital age, visiting Hertz, Oersted, Faraday, Bell, Edison, Morse, Dolbear, Maxwell, Marconi, Tesla, Fes-

(Continued on page 25)

(From Wireless to Radio from page 24)

senden, Varley, Poulsen, Alexanderson and many others. In each chapter you will find experiments to try out. In experiment 13, you can re-enact the experiment carried out by Heinrich Hertz in 1888 (with low power and without a spark).

Part 2 is the construction projects and it starts of with construction hints. Then there are 16 projects you can try your hand at, from a morse code oscillator; pre-amplifiers; audio amplifiers; voltage amplifier; Colpitts oscillator; amplitude and frequency modulators to a crystal set and on to a direct conversion receiver and more. The direct conversion receiver (project 18) used with the frequency converter (project 12) and the preselector from the TRF receiver (project 10) allows you to tune across the 40 and 80 metre amateur bands.

Part 3 is the Fact Sheets and here are 18 of them, dealing with direct and alternating current, resistors, capacitors, inductors, transformers, impedance, resonance and resonators, transistors and more. Why did I not have this book when I wrote the RAE?

Then you will find a list of historical events and an index of inventors and radio pioneers. There is a subject index and key-words for internet searches. I spent some time in the glossary looking at the definitions. To end off there is a list of component suppliers in the UK and USA.

I would encourage the novice and the expert (and all in-between) to get this book for his or her library. The fact sheets would be most helpful for those studying for the upcoming RAE. To quote Professor Russell Stannard, OBE, Emeritus Professor of Physics at the Open University, "For someone wishing to learn about the history of telecommunications, as well as gaining a little expertise in the subject, this book would be hard to better."

From Wireless to Radio: Bridging the Gap [ISBN 978-1-84549-300-4] published by Arima Publishing (www.arimapublishing.com) can be purchased from Amazon.com and I also saw it on Kalahari.net. The cover price is £12.95 or $26.00 (the price on Kalahari.net is around R450.00 - not sure what exchange rate they use!)

(Continued from page 5)

the dress code for dinner is smart casual. The guest speakers will be Dr Sias Mostert from SunSpace. Cost R130 per person.

Sunday 26 April 2008 - 09:00.
Breakfast at Poplars Restaurant at the D'Aria Estate. Cost R65. GPS S33 50,472 E18 36,638.

The rest of the day at leisure, time to taste the wines of the Cape at the many wine farms in the area.

If you have not visited the Cape, here is an opportunity to combine it with a great weekend of amateur radio and fellowship.

Book Early and we look forward to seeing you in the Fairest Cape!

A simple balun housing

by Frank van Wensveen, ZS6TMV / PA3GMP

As any radio amateur who has ever made a balun knows, the balun itself is only half the job. Just as important as making the balun is to weatherproof it, and to house it in such a way that it can be mounted outdoors. Commercial weatherproof boxes can be expensive and bulky, while most other plastic containers tend to deteriorate quickly when exposed to the levels of UV in South African sun-light. What to do?

I have found my favourite solution at a local plumber's shop; in the form of some 50 mm plastic drain pipe and a pair of 50 mm end caps. Most plumbers have some off cuts lying around somewhere that may be had for little or nothing. The end caps will typically set you back five or six Rand each, depending on where you shop.

To house a toroid balun, cut a piece off your 50 mm pipe that is roughly 30 mm in length. (A few mm more or less will not matter all that much.) This will essentially give you a plastic ring, 50 mm in diameter.

Drill two holes in one of the end caps for the terminals that connect to the (balanced) antenna. I used banana plug chassis mounts that double as binding posts, but you may prefer stainless steel bolts, wing nuts or anything that suits you. Drill a hole in the centre of the other end cap for an SO-239 chassis mount. Place the chassis mount in the hole, mark where the screws should go, and drill holes at the marks.

Push the plastic ring about half-way into one of the end caps, and then connect the wires on one side of the balun to the terminals. See the photo below for details.

Connect the wires of the other side of the balun to the SO-239 chassis mount. Solder the wire that has to connect to the shield of the coax to a lug before mounting the lug on one of the screws that hold the SO-239 chassis mount in place, in order not to melt the plastic.

All that is now left to do is to push the housing closed, as shown in the photo below. The end caps should fit very snugly onto the piece of 50 mm tube. Chances are that you can just push the housing closed without any glue. This allows you to test the balun within the closed housing while providing you with easy access if any changes should be required. Once you are satisfied with its performance, a little silicone sealant will be enough to weatherproof it. PVC adhesive could also be used, but then the housing cannot be opened again without destroying it.

These 50 mm plumbing parts will comfortably house most toroids

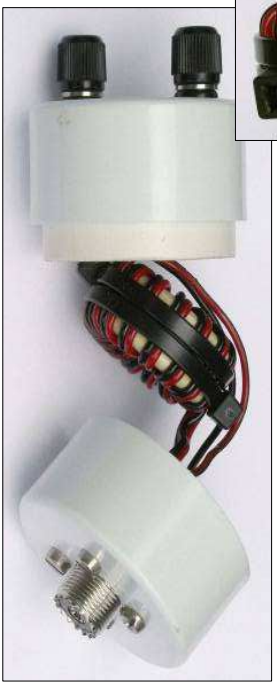
(Continued on page 27)

(A Simple Balun Housing from page 26)

used for legal power levels. Ferrite rod baluns can be housed in a similar fashion, all it takes is a longer piece of tubing. The photo below shows a Guanella balun using two ferrite rods. This time the balanced terminals have not been mounted in the end cap but in the tube itself, leaving room in the end cap for an eyebolt.

For larger constructions and heavier components, 120 mm sewage pipe and end caps may be used. In fact, all kinds of things can be kept out of the weather this way: cable junctions, relays, pre-amplifiers and what not. Cable glands may be used as required. Housings constructed in this fashion are lightweight, easy to make water-proof, and are UV- resistant. They can be made in less time than it takes to brew and drink a decent cup of coffee with simple tools and, something that should appeal to all true radio amateurs, they are cheap and require parts that are easy to obtain.

Good luck!



The Museum Piece

Dave Gemmell, ZS6AAW, and the Old Timers

Choices!!!!!

Yes! A choice! In which column shall I mention CW! Good old Morse code! In my opinion, this subject could be in The Museum Piece or the Radio Scouting column!

Being an old mode, CW should be considered a museum piece. Sorry! Elderly or the Senior Mode! The words "old" and "elderly" have the connotation that they use to refer to something that has no use!! Far from it!! Think of petrol! It has also called a "fossil fuel" but it keeps the modern motor car on the go!!

CW QRS Net

Gerald, ZS6IG, and I have decided to go ahead and find a suitable frequency and time. In the meantime, please let us know what time and frequency will suit you and we will try to come to some amicable arrangement.

In the beginning, the speed will be real slow! The main idea of this QRS Net is to keep ourselves "in practice" and improve our CW. Every so often, we will review the situation, possibly increasing or even decreasing the speed. On request, the speed will also be varied to suit the listener or newcomer!

Again, I must point out that this CW QRS Net is still in the trial stages between Gerald and myself. So feel free to make suggestions.

Morse keys!! The use of---!!!!

I personally do not like making too many rules but let us call this one a "polite request"! Gerald and I have decided to ask all those joining in the net to please use straight keys only. If the need arises, a separate CW Net to cater for those who want to increase speed or use "fancy" keys.

My personal observations about these "fascinating" electronic keys are that a few owners have not yet mastered all the adjustments. The result being inter-letter and word spacing is, at times, incorrect which makes the Morse difficult to copy.

The Other Nets

Although we have strong ties with Andy, ZS6ADY, and the ZS0AWA CW Net on Saturdays from 14:00 on 7 020 kHz and the QRP gang, weekdays on 3 579 kHz at 06:30, and the ZS6MUS CW QRS Net, these are three separate CW nets. There could be others on the HF bands. So, if I have left any out please let me know.

The Casual Listener! Or the Shortwave Listener (SWL)

When reading this section, please think of the general public who, you could say form the silent majority. These listeners are actually the best link we have with the members of the public. It would be a

(Continued on page 29)

(The Museum Piece from page 28)
good idea to have some of those amateur nets use a mode that could be received by any one using an ordinary domestic receiver. Perhaps we should use it now to attract some new members to this hobby of ours! What is going to happen in the future when all SW Broadcasting is digital? Will this new generation of domestic receivers be able to pick-up amateur signals when amateur radio goes down the same digital path?

A Suitable Ending??

Roger Cooke, G3LDI, writes a CW Column in Practical Wireless, titled Morse Mode, which I recommend you read if you have access to the magazine. I tell you this because he has a novel way (space age??) of ending his article ……

73 and May the Morse be with you!

Radio Scouting

Dave Gemmell, ZS6AAW
and the Broomstick Warriors

Scouts and the Gauteng Kon-Tiki

This was my 20th time that I have visited this rafting event but actually, it is about Jan Schubart's 25th!!

This is an excellent time to set a small amateur demonstration station and have a "fun time" for either the whole weekend or just the Saturday or part thereof. If we get enough operators, we could take turns at operating and see the scouting activities as well. Then again, you might even be able to get the guides and scouts to help you operate or help with an experiment you have wanted to try out for years.

On average there are 100 teams/rafts, so counting helpers, supporters, and day visitors, there must be at least, 5 000 people (if not more!) who may visit your station.

Take my word for it, operating for a few hours at an event like this can be a great deal of fun! Especially if you arrange for extra demonstrations, e.g. CW, AM etc. with another distant station! Make sure your have arranged for the non-licensed to talk as well.

Each "such" activity must not only "grip/grab" the interest of the youngster but also "tie-up" with some badge requirement. Now this is an "exciting" exercise! Examining the main features of the scout badge and work out an amateur radio activity to suit each of them. This is important as most people have the erroneous "vision" of amateur radio being an old man huddled over a microphone talking to himself for hours!!

I spoke to Jan Schubart,

(Continued on page 30)

(Radio Scouting from page 29)

ZS6ARV, the Chairman of the event. He said he would be very approachable by any amateur radio club who wants to set up an amateur/ demonstration/special event station during Kon-Tiki 2010, (probably 5 - 7 March 2010).

Remember your special event station need not have to supply the communications for this weekend but merely operate from a suitable tent/ shelter. Hopefully the organisers will supply this if you prove yourselves serious about your endeavours.

I am willing to take a small bet that some of you readers that once you have operated at such an event would want it repeated on a yearly basis!

"Another type" of JOTA station!!

How about the amateurs who, in the days of their extreme youth, were Scouts (and/or XYLs who have been Guides) setting up stations for the JOTA week-end. If you can persuade a few real live scouts/guides to attend so much the better! I see no reason why it cannot be done neither can I recall seeing any regulation/rule which prevents any amateur from doing so!

JOTA really, could do with more local scout stations! What fun it would be if there were a pile-up of stations that week-end. It would give me great pleasure is to inform the other NJOs around the world that South Africa would be having a few "Old Scout" JOTA stations this year.

All the address information stays the same, dave@zs6mus.org.za or davegemmell@bmknet.co.za (yes, for the time being, I have two e-mail addresses) and PO Box 77, Irene, 0062 and tel 012 667 2153.

SILENT KEYS STIL SLEUTELS

They shall grow not old as we that are left grow old
Age shall not weary them nor the years condemn
At the going down of the sun and in the morning
We will remember them."

Hulle word nie oud soos ons wat bly vergrys,
Die jare sal hulle nie raak nog die tyd se eis
En, soos die son sak of die more ontvou,
Eer hul herinnering – ons sal onthou."

Dave Plaskett, ZS6RVG
Hennie Pottas, ZS3HP
Dieter Schliemann, KX4Y
Mike Rowland, ZS6AFG
Colin McGee, ZS5YK
John Whitfield, ZS6WL
Colin Baker, ZS5ED
Ron Marlow, ZS1RON
Benard Jorgenson, ZR6AES
Chris Els, ZS2CJ (ZS6CCM)

EZ10-GPS-ZS

Telit EZ10 GPRS Terminal with GPS for APRS

The Telit EZ10-GPSZS is special package of the EZ10-QUAD-PY GPRS Terminal combined with a GPS Receiver available to Licensed Radio Amateurs only.

+EZ10-GPS Quad Band Terminal
+GSM Antenna supplied
+GPS Antenna supplied
+Power Cable supplied
+APRS software downloadable
+Supply your Callsign with order for programming

Also supporting your Amateur Radio requirements with RF Cables and Connectors

View our clearance items online

ASS-APRSPCB

2m APRS Beacon Transmitter

The SkyTracker is a locally developed 144.800 MHz APRS beacon consisting of :

+Integrated u-blox LEA-4P GPS receiver module
+Radiometrix HX1-144.800 transmitter
+Mitsubishi RA08H1317M RF power module
+APRSTracker OpenSource firmware on PIC
+Frequency : 144.800 MHz, RF Power : 8W (variable)
+Connectors : SMA-F (TX), MCX-F (GPS)
+Very Compact Size : 72 x 56mm
+Optional Active GPS Antenna, 2m Antenna and Aluminium Case

RF DESIGN

National no: 0861 753 357

All products available online @ www.rfdesign.co.za

Cape Town: 021 555-8400

Unit S13
Spearhead Business Park
Montague Drive
Montague Gardens, 7441

Gauteng: 011 695-2200

Unit 7, Block 3
Waterfall Terraces
Howick Close, Waterfall Park,
Midrand 1685

Durban: 031 266-4534

4B Buckhurst, Essex Gardens,
1 Nelson Road
Westville
3629

AUTHORIZED RADIIO DEALERS:

AES
Johan ZS6JPL
083 300 8677

Ham Radio Outlet
Donovan ZS2DL
082 852 4885

Kevtronics
Kevin ZS6KEV
012 803 0973

Lets Play Radio
Kobus ZS1K
082 881 1164

BigTechnologies
Barney ZS4U
083 4627507

Vertex Standard

YAESU

FT-857

www.verstay.co.za