Radio ZS

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The History of RaDAR Amateur Radio Direction Finding

1925 - 2010

Be Surprised by the World of Amateur Radio

South African Radio League
Suid-Afrikaanse Radioliga

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The National Body for Amateur Radio In South Africa
Die Nasionale Liggaam vir Amateurradio in Suid-Afrika
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SARL News Bulletins/ 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

www.sarl.org.za/newsinbox.asp

Amateur Radio Mirror International
Sundays 10:00 CAT Sondae
16 and 40 metres AM; 7,082 MHz SSB
2 m and 70 cm FM; Echolink by ZS6FCS
http://www.sarl.org.za, click on ARMI and
follow the links

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

South African Radio League
Suid-Afrikaanse Radioliga

Radio ZS

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In this issue / In hierdie uitgawe

Front Cover / Voorblad

Members of the Orion Voortrekkers in Vanderbijlpark taking part in CQ Hou Koers in October. They are Jean-Marie Olivier, 11 years, Cliriska de Jager, 11 years, and Angelo Mendonidis, 12 years.

Lede van die Orion Voortrekkers in Vanderbijlpark neem deel in die CQ Hou Koers in Oktober. Hulle is Jean-Marie Olivier, 11 jaar, Cliriska de Jager, 11 jaar, en Angelo Mendonidis, 12 jaar.

Contributions to Radio ZS. Radio ZS is a forum for SARL members to share their amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or e-mail are especially welcome. Material may be submitted in rtf format. Material may be mailed to The Editor, Radio ZS, PO Box 12104, Brandhof, 9324 or by e-mail to radiozs@sarl.org.za. The SARL cannot be responsible for loss or damage to any material.

Do we need Innovation....

Innovate, verb. To invent or begin to apply (methods, ideas, etc.) from the Latin *innovāre* to renew.

Innovation is a much debated topic at both academic and industrial level. The question now arises that, if everyone around us is focusing on innovation, should we as radio amateurs not be doing the same? The question is, "Do we need innovation in Amateur Radio?"

This was the topic of the Intecnet on Sunday 5 December 2010. John Williscroft, ZS6EF, and Hannes Coetzee, ZS6BZP, discussed this topic with some input from many SARL members around the country.

Do we need to invent or apply new methods and ideas in amateur radio? Yes, we do! Technology is changing rapidly and we must keep abreast or even take the lead. It could be a mode of communication, a piece of equipment or the improvement of old or present technology. The sky is the limit and we need to start thinking outside the box. That which was impossible a few years ago is now becoming possible. The space race began with one small satellite!

Spread Spectrum is a new technology and a field for innovative ideas. John, ZS6EF, the SARL Councillor for Technology, has done a lot of research and at the RTA's he has presented a number of sessions on this interesting technology. He has built and demonstrated equipment to be used with Spread Spectrum.

WSPR or Weak Signal Propagation Reporter by Joe Taylor, K1JT, is a new and exciting innovation covering propagation studies, it is a educational tool and it alerts us of band openings. You can collect or share real-time data as a listener or a transmitter.

Innovation can take place on all levels of amateur radio. Should we not look at the SARL and Club contests? What about some new ideas for contests? Many of our radio clubs need innovation to save them from closing down. What are the successful clubs doing right? They must be using innovation to run interesting programmes where learning and socialising takes place. Share that with the other clubs.

Dit voel soos gister dat ons mekaar 'n voorspoedige nuwe jaar toegewens het en nou het dit amper tyd geword om die ou jaar te groet. Ek wil graag my dank uit spreek aan al die radioamateurs wat so getrou die SARL, die radioklubs en die stokperdjie ondersteun. Dit word waardeer. Dit is my wens dat ons die regte betekenis van Kersfees hierdie jaar sal nastreef.

In closing, may I wish you a very Blessed Christmas or Happy Hanukkah or just happy holiday. Spend this time with your family and loved ones and enjoy their company.

I also challenge you to think about some innovative ideas for amateur radio in 2011!

73 & 88, Dennis, ZS4BS

Amateur Radio – the most versatile hobby on earth

Ambitious Amateur Radio

Victor P du Preez, ZS6EA

For the statement, "***Amateur Radio – the most versatile hobby on earth"*** to be applicable, the hobby will have to be of such a nature that all the ambitions of the participants in the hobby should be met. Usually this ambition of radio amateurs, not only for the sake of competitiveness, but also towards the betterment of science, equipment, skills and all other facets of the hobby, becomes a way of life. For the radio amateur succeeding in ambitious goal setting and the resulting achievements, the sharing of knowledge and realisation of individual growth is not something mysterious, but something that radio amateurs do every day in practicing this wonderful hobby. It becomes second nature, something to be assimilated into normal everyday life, to be used at home and indeed at work.

It should be noted that there are no limits to the heights that can be reached by the amateur radio hobby for any ambitious person! This is a bold statement I admit, but fortunately for us radio amateurs it is true. The radio amateur, no matter to which branch of the hobby he finds himself attracted could live out all of his wildest ambitions and the financial implications in doing so will be less weighty than in any other hobby that I know of.

You will find that the calibre of person, who is not satisfied with the mundanity of everyday life, is the one who is attracted to this hobby. After reaching your goals in the niche that you find yourself to be participating in, it could happen that the excitement declines; however, the hobby offers such a variety of choices that you will always find something new to get it going again. This excitement could even return while doing exactly the same thing that attracted you in the first place, but doing it in a different way (although with the same equipment, it now costs you nothing).

I have often noticed something when questioning a radio amateur friend: *"Hey Tom, how's it going with your country count, got some new ones lately?"* Knowing that Tom needs just two or three countries to get to his ultimate goal, I could see that he does not seem to be his old perky self these days. *"Ah my man, not so good! I don't know about you, but I can't seem to get these last ones in the log, I can't stand this sitting around anymore."* It is at times like these that you know it is time for a change Tom! *"Try something else while you wait on your last countries, you will get them, but try something else in the meantime."* It will not be long before you meet Tom again and

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(Proudly Amateur Radio from page 5)
the sparkle is back. Without your even having to ask, he exclaims, "*You just have to see this, I have gone low power, I already have 25 countries in the bag. Man oh man, this is fun! You guys must try this*."

What happened was that instead of using 1 000 Watts to do his DX County hunting, Tom was now using 5 Watts. He was still doing the same as always with the same equipment; he only changed his ambitions, raising the stakes for himself. A new challenge and many new experiences are awaiting him. What I am getting at is that we can often get a lot more mileage out of this hobby by just having a shift in thought. When we get discouraged or the hobby seems to lose its appeal for you, don't criticize the hobby or the people who are having fun; rather visit another radio amateur and see what he is doing, talk to your fellow radio amateurs and find out what else of interest is there to participate in. I am absolutely sure that any radio amateur who knows of your plight will jump at the opportunity to guide you into another aspect of the hobby that will bring back the excitement of the past. The hobby cannot afford to lose valuable members this way. Fellow radio amateurs, let us look after our own, remember they are family and we have to see to it that all our kin are happy. #

History is what makes us who we are today!

Hans van de Groenendaal, ZS6AKV

This is the story about the oldest Amateur Radio organisation in the World, the Wireless Institute of Australia this year celebrating its centenary.

Wired telegraphy was global by the time Marconi demonstrated his wireless system in 1895. At that time, the radio spectrum was under the control of the British Royal Navy who was responsible for the defence of Australia.

Two university academics, Prof Trefall at the University of Sydney and Prof William Bragg at the University of Adelaide pioneered wireless telegraphy in the then Australian Federation. As early as in 1888, Prof Tefall repeated Hertz's demonstrations.

In 1887, Prof Bragg gave the first recorded demonstration of "Telegraphy without wireless." He had a very competent technician, A. L. Rogers, assisting him with the practical aspects of the lecture. Following his success using wireless telegraphy to communicate between Henley Beech and the Adelaide Observatory, about 8 km, Bragg advertised a series of three Extension Lectures on Wireless Telegraphy in the Adelaide Advertiser of 13 September 1899. The course was well attended and covered "a *brief account of theory of electric wave and the work of Maxwell, Hertz, Lodge, Preece, Marconi and*

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others." The lecture series included practical demonstrations. (1)

It is interesting that officialdom at the time was not supportive of the wireless idea. In 1901 the Secretary of the Australian Federal Post Office looked with disfavour on everything that was not revenue producing and for the time being wireless was doomed.

We find similar attitudes about wireless in other parts of the world. In South Africa, in 1899 after a demonstration of wireless telegraph by Port Elizabeth technician Edward Alfred Jennings, on invitation of the Cape Post Office, in Parliament the then responsible minister, the celebrated John X Merriman said, "Life is troublesome with ordinary telegrams. With wireless telegraphy it will be unbearable!" (2)

Hans van de Groenendaal, ZS6AKV, (right) congratulating Michael Owen, VK3KI, President of the Wireless Institute of Australia, while visiting the WIA in Melbourne earlier this year.

Organised Amateur Radio Takes shape

In a series of articles in the Wireless Institute of Australia (WIA) publication "Amateur Radio," Peter Wolfenden, VK3RV, traces the history of the development of radio in Australia and the formation of the WIA.

Although there are anecdotal reports that the Wireless Institutes of Victoria was formed in 1909, to date no firm evidence has been found to support this proposition. In March 1910, the Wireless Telegraphy Institute of Australia was estabished in Sydney. Soon after formation the "Telegraphy" was dropped from the name." Peter Wolfenden writes, "Placing the date in context, it was about 13 years before regular broadcasting started in this country and was over a year before The Maronigraph journal was published by the Marconi Wireless telegraphy Company. (It later became Wireless World). The Australian publication The Wireless Weekly did not start until 1922.

The Daily Telegraph of 12 March 1910 reporting on the inaugural meeting stated: "Every experimenter was at the beck and call of the Military, Naval and Postal authorities and was allowed no legal redress if departmental officers thought he was breaking the rules." An other major issue experimenters had at the time was the cost of their licenses. "Why should we have to pay three Guineas (about R2 000 in today's money) as aerial navigation experimenters are charged nothing."

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At the inaugural meeting, the Chairman George Taylor pointed out: "Investigations of wireless were today on the verge of an arena of wonder … they were like explorers in strange countries where every step was a discovery"!

In his editorial launching 2010 as the WIA Centenary year, Michael Owen, VK3KI, WIA President wrote, "While we are talking about the centenary formation of organised Amateur Radio in Australia we are really celebrating the history of radio."

"A hundred years ago everyone was an experimenter. While the emphasis on what radio amateurs do and the technology they use today has changed, the basic concept and basic traditions of Amateur Radio have not changed. Perhaps as we celebrate the past it is time to consider how change will affect Amateur Radio in the future. The convergence of technologies, computers and their software, the internet and radio communications is a fact of life and Amateur Radio is embracing it."

(1) Various edition of Amateur Radio, the WIA journal
(2) You have been listening – Eric Rosenthal

VHF Contests are Challenging and Great Fun!

Mike Bosch, ZS2FM

Radio amateurs in the USA started VHF contesting to promote long distance tests and encourage the improvement of VHF equipment. This resulted in the remarkable distances that they have achieved and it also increased their knowledge of VHF propagation: they learned a lot about the vagaries of Tropo, Sporadic-E as well as Meteor Scatter. The US amateurs are great in setting up field stations on high sites for VHF contests using very high gain Yagi antennas and top class equipment. It became a great radio sport and spread to UHF and the higher frequencies.

Unfortunately, in recent years only around a hundred South African amateurs or so have participated in our annual VHF contests; compared with a grand total of several thousand Radio Amateurs in this country. We do not expect everybody to join in, but several hundred amateurs on the air during a VHF contest would be a fantastic experience for all participants.

A typical field station set up for a VHF contest is as follows: Between two to four amateurs would travel in convoy, each in their own motor vehicle, and set up separate stations in a caravan or a tent or in the vehicle, all on the same high site located several hundred kilometres or so from city/ town. Each station is equipped with its own Yagis, VHF/UHF transceivers, batteries and often also a petrol-driven generator. Single operator field stations are recommended as

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(VHF Contesting from page 8)
they provide extra long distance contacts during a VHF contest.

In contrast, multi-operator Club stations are also encouraged, as this makes possible simultaneous operation on all the bands. Furthermore, a Club station could become a family outing, a picnic and a braai in the evening topped off with a few beers, etc. Club and field stations usually keep the bands alive for the full contest period.

Meteor Scatter is possible around sunrise on 50 MHz and 70 MHz SSB, but MS provides excellent communications at this time too for digital modes on 50 MHz up to 432 MHz. Look for Tropo openings until about two hours after sunrise on 50, 70 and 144 MHz. Also, watch out in the morning, and again in the afternoon, for strong Sporadic-E openings on 50 MHz and 70 MHz SSB and FM. In the evenings, it is the best time for Tropo openings especially on 144 MHz and 432 MHz all mode.

If you have never tried to participate in a VHF contest before then give it a go, it will surprise you and it is great fun. Make an effort to get some of your radio amateur friends interested too, and then challenge them to try to beat you in working the longest distances and/or scoring the most points or grid squares.

The rules for the PEARS National VHF/UHF Contest and the SARL VHF Contests are given in the Blue Book on the SARL website. The former is scheduled for January and the latter for March and September months. Try them all and enjoy the experience!

The History of RaDAR
Rapid Deployment Amateur Radio

Eddie Leighton, ZS6BNE

This an extract from the website of Kevin, ZS6KMD, at www.zs6kmd.za.net/sias.htm.

Eddie, ZS6BNE, came up with an awesome concept (one used for many years by the military, etc.) to build a comfortable portable radio station capable of operating for periods while walking or stationary after walking to a specified site.

The idea was discussed in an open forum and ideas gleaned from many of the local radio amateurs, some prototyping was done and Voila!! The “Shack-in-a-Sack” was born.

Subsequently it was decided to include the SiaS (Shack-in-a-Sack) in one of the SARL mobile HF radio competitions. Some simple ground rules were laid and off everyone went to build and set up a station to operate /ss or portable /p. The first team of “Shack-in-a-Sack” radio amateurs who took part were: Deon, ZS1AFU; Johan, ZS2CX; Eddie,

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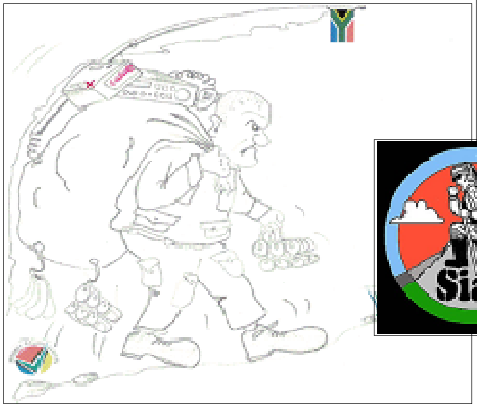
ZS6BNE; Kevin, ZS6KMD; John, ZS5J; Tienie, ZS6MHH; Stephen, ZU6ET; Nico, ZS6SNH; Charles, ZR5CBT; Doug, ZS1DUG; Hennie, ZS1HR; Renier, ZU1RDU and club operator ZS1WRC. All signing /ss.

14 August 2008. Submitted logos uploaded to ZS6BNE's QSL.net website.

Special SiaS photograph submissions

24 September 2008. SiaS operators took part in the Blockhouse project organised by the Sasolburg Amateur Radio Club, ZS4SRK.



24 August 2009. RaDAR or the Rapid Deployment Amateur Radio initiative was launched. (Radio ZS September/October 2009). SiaS was a concept and needed a name. Unfortunately all the discussions that took place via the SARL Forum on SiaS, no longer exist.

25 August 2009. The launch of the RaDAR business card. Subdivisions, "On foot", "Mobile" and "Fixed". The RaDAR station can carry a business card with his call sign and RaDAR subdivision logo. Good for Amateur Radio public relations!

27 August 2009 – Our first query about RaDAR from outside South

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Africa from Jack, VK4JRC.

November 2009. Deon, ZS1AFU's, historic SiaS photo published on the front page of Radio ZS and the article included discussed the RaDAR concept and how the name evolved. (Radio ZS September/October 2009)

April 2010. 1st SARL RaDAR Contest (Winter). Over 100 individual stations were logged during the April 2010 RaDAR contest. Most stations took part for fun. A few Potchefstroom club members took part individually sharing the same facilities and certainly can be commended for their high club spirit. The following category points were awarded:

Home stations using normal antennas and mains power.
Theunis, ZS2EC/3 (QRP) – 43
Derek, ZS2J (QRP) - 20
Francois, ZS6BUU - 5

Home stations not relying on their normal antennas or mains power.
None

Portable operation not relying on mains power, including all mobile stations.
Andries, ZS6VL - 174
Pierre, ZS6BB (QRP) – 117
Coenie, ZS6PCO - 33
Carl, ZS6CFW - 21
Nico, ZS6NVR - 21
Kevin, ZS6KMD (QRP) - 15
Mike, ZS6MEG - 6

True RaDAR portable operations not relying on existing antennas or mains power.
Tienie, ZS6MHH - 124

True RaDAR portable operations as above and using QRP. Output power limited to 5 watts PEP.
Eddie, ZS6BNE (QRP) - 250
Christo, ZR6LJK (QRP) - 210
Allen, ZR1AAH (QRP) - 105
John, ZS5J (QRP) - 45

Check logs
Geoff, ZS6GRL

May 2010. Dutch radio amateurs take RaDAR to the next level. The Lowlands 5x5 RaDAR group was formed by two Dutch radio amateurs, Elmar, PD3EM, and

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Peter, PD1AJJ. Elmar's website can be accessed at http://www.pd3em.com/

Peter, PD1AJJ, and Elmar, PD3EM.

September 2010. French radio amateurs take RaDAR to the next level. I was very excited by what I saw on the RaDAR Facebook page this weekend. Please visit http://radar-france.blogspot.com/. The Blog is mainly in French but it is great to see the RaDAR concept being adopted by even more radio amateurs in Europe.

November 2010. 2nd SARL RaDAR Contest (Summer). Band conditions for long distance communications were not good. From the logs received, most activity took place on 40 m together with a few LEO FM Satellite contacts. All ZS divisions were active. The rain and other circumstances made it difficult to be active for the full six hours. The darkness

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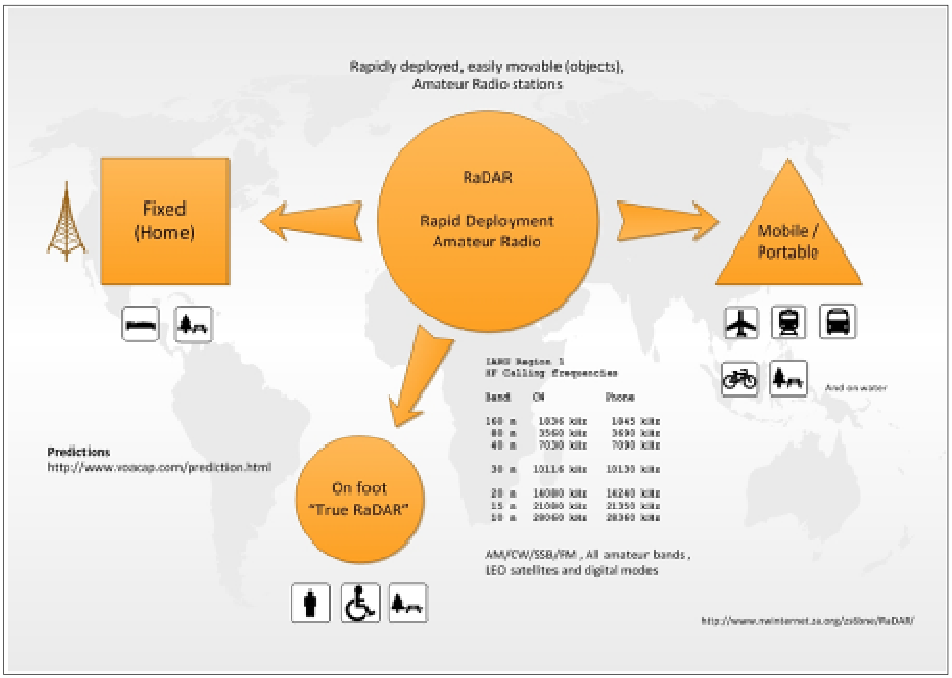

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only set in towards the very end much unlike the winter contest.
Pierre, ZS6BB – "True RaDAR"

RaDAR Summary

RaDAR has somewhat changed, expanding from an "On foot" operator to include other stations but emphasising rapidly deployed, easily movable (objects), Amateur Radio stations.

To be considered as a "True RaDAR" station, the entire station - radios, batteries, mast and antennas, together with warm clothing, food and water, must be easily portable and hence the need to carry the equipment for at least 1 km.

Amateur Radio in Space [ARiS]

Eddie Leighton, ZS6BNE
2010 NSN Radio Amateur of the Year

SumbandilaSat SO-67 - Alive and well

As was mentioned on SA AMSAT's website at http://www.amsatsa.org.za/, SumbandilaSat was to pass South Africa at 19:52 UTC. I went into the shack and prepared SatPC32's Doppler.SQF file for the frequency pair of SumbandilaSat. It was not as straightforward as the naming conventions for this satellite were different than AO-51 for example. I used the AO-51 entries as a guideline. I needed SumbandilaSat's FM Repeater frequencies and found them on the AMSAT Website address http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=71&retURL=/satellites/status.php.

I was a little late for the satellite but caught the last two minutes of the pass. It was confusing at first. I thought there was QRM on the downlink frequency not realising it was SumbandilaSat's carrier! I could work through the satellite right down to the horizon! The cut-out problem was no longer there. The characteristic "Burst" heard often on SumbandilaSat was still there. Welcome back young lady!

SumbandilaSat - Now even easier to work

At 19:52 UTC, strange that this time occurs frequently, SumbandilaSat passed from South to North on the

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westerly side of South Africa. After the satellite came into range, I listened on the downlink and about two minutes later, I heard the carrier come on. I keyed my transmitter with the specified PL Tone active and could hear a tone on the downlink. It almost sounded like feedback, annoying in a way. I switched off the PL Tone, keyed the transmitter and I was still able to access the satellite! The signal was clear without any cut-outs.

I called CQ a few times before Jaco, ZS3JLR, came back to me. He was using a "Bow and arrow" type antenna and a Yaesu FT-857. I recorded our QSO.

The satellite is really a pleasure to work now, especially without the PL tone requirement! The downlink carrier is extremely strong. Because the altitude is only a little more than 500 km above earth, the Doppler change is fast. Typical pass time from horizon to horizon, about ten minutes. Hope to work you via Sumbandilasat soon!

Why I do not work the satellites! Laurie Deveraux, ZS5DL

Laurie makes a few statements here (*in italics*) which give food for thought. The author's comments are in no way an argument against Laurie's statements, only to explain how he has experienced the satellite scene during recent years.

"What a question. Well I have worked satellites and from a mobile at that. It is not difficult or should I say it was not difficult when satellites first came on the Amateur Radio scene many years ago. And of course it was fun then."

It is still fun! Even more so now, I would say. Sometimes it is easy but in most cases it is not. It requires practice. The ultimate is working as a portable station away from all the automated tracking and Doppler control with basic equipment and simple homebrew antennas.

Now where is all the Keplarian Element information? I am told it is there in abundance BUT you have to know where to look for it. It seems that this information is a national secret, until you press some Satellite fundis for the information, and they talk down to you, not even knowing whether you have a computer and whether you have Internet access. Many radio amateurs have computers but, due to their financial situation, only have e-mail facilities. Much cheaper than full Internet and they cannot afford ADSL facilities. When there was packet radio it was easy to obtain the Keps. They were there and kept up to date on a daily basis. Now there is this marvellous thing called the Web. "They are on the Web," in fact everything is on the Web if you have lots of time and patience to search for it. Yes, I curse those words "it's on the Web."

Yes, the Keplarian elements are on the web (Internet), in a central place. The web gives you access to many types of software and lots of information. It is a part of modern amateur radio. Most, if not all, satellite prediction software like Satscape, Orbitron, SatPC32 and Ham Radio Deluxe, to name but a few, make use

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of a downloadable file, amateur.txt.

The website address is, http://www.celestrak.com/NORAD/elements/amateur.txt. Now it is no longer a national secret! The software on the computer may download this file before every use! All the Keplarian elements for amateur satellites, dead and alive, reside in this file. This file can be downloaded and e-mailed to radio amateurs who do not have Internet access for use with their installed software. This must be done regularly, at least every two to three weeks. A computer is of course needed to run the software. As for the "Satellite Fundi's," all the Satellite operators I know would never talk down to any radio amateur, they had much rather welcome him/her to the fraternity!

"So what happened, you ask? What has put me off? Ill discipline is the main answer. Undisciplined radio amateurs who were, and are more so today, hogging each and every pass. I ask myself why this is so. Well there are about 12 radio amateurs in South Africa whom are using High Power with extensive antenna arrays and other techniques who meet the satellite as it comes firstly over the Western Cape area and keep chatting away until the Eastern Cape takes over and also chat away excluding many radio amateurs from "getting in". This is followed by those "Big Stations" in Division 6. And so the pass is over. And so they wait for the next pass and a similar situation ensues."

I really do not agree with this statement at all. Satellite operators are very disciplined, in fact they try to operate in such a way that it is beneficial to all satellite operators.

Chatting away?" Satellite operators do not generally do this unless there is not much activity during the pass and they always keep their ears open for another signal.

"High power?" I have seen this but it was really only newcomers not realising that high power is not necessary to work the satellites. They were kindly welcomed and helped. Satellites can be worked using as little as 300 mW or even less, the norm is around 5 Watts and on occasions it may be necessary to use 50 Watts at very low elevations while working DX, a few seconds chance during a difficult pass. The downlink however is monitored and power reduced accordingly. All stations in South Africa enjoy using the channel or channels, in the case of linear transponders, (SSB) together.

Then I ask myself a serious question "Who do I talk to on satellites" supposing I do get in. It is the same type of contact every time. Someone says it is the thrill of working a satellite. Man-o-man. You do it once or twice and the next thousand times, if you are lucky, will be exactly the same!

Sure, there is a small group of regulars on the satellites. We would certainly like to increase our numbers. There is more to working a satellite. The mere fact that you can, should still give you a sense of accomplishment. It is about the planning, the tracking, setting up your radio cor-

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(Amateur Radio in Space from page 15)
rectly and correct, accurate voice procedure. I would agree with Laurie, in a “Plug and play” situation, where it would reduce the challenge but that is very seldom the case when working the sats.

Oh No! you say. "There is Satscape, dual band Tx, Dual bands co-linear antennas" and so on. Mostly things I cannot afford. "Well if you cannot afford them you lose out.” So I lose out. And I do not have a UHF TX, so I am told I have to have a UHF rig to work satellites. So I do not work Satellites. I personally do not need a UHF rig at all. I do not have use for one.

FM Dualband handheld radios (2 m/70 cm) are readily available and are not too expensive. Most radio amateurs invest in such a rig. Such a rig could give you access to the FM LEO Satellites like AO-51, SO-50, HO-68 and our very own, relatively UNUSED, SO-67 or SumbandilaSat. As for antennas, I have often tried to make the point that simple homebrew antennas can be built cheaply and they WORK!

I do not want to hear from those who earn R15 000 to R30 000 per month, what I must have to enjoy Amateur Radio. And working Satellites is Amateur Radio. SA AMSAT and Satellites are Amateur Radio and NOT Scientific experimentation for an absolute minority anywhere in the world. They are AMATEUR Radio Satellites. It requires an Amateur Radio Licence to operate satellites. Today, “professionalism” is creeping in to Amateur Radio and whilst they are in the minority they are hell bent on inflicting themselves on others. I do not need that in my hobby. Please do not "bulldust" yourself that Amateur Radio is anything but a hobby. You will be deluding yourself.

An interesting statement. Sure amateur radio satellites carry amateur related radio equipment. What may attract interest, for example, is decoding the CW telemetry of FO-29 and deciphering what the codes mean. We are also looking at building our own Cubesat with our own experiments on board! So yes, there can be more to amateur satellites than just using it as a repeater! The future of Cubesats seem bright!

South African radio amateurs do not contribute a cent to overseas satellites or organisations and so do not enjoy many passes from most satellites, which are Northern Hemisphere based. These are reserved quite rightly by those who built and paid for them, so South African radio amateurs cannot expect much use of these satellites. So what is left for me? I want to work the ISS but I am either excluded because only certain persons have priority of use most of the time or the passes are mostly in the North.

Looking at existing amateur satellites, they are available to every radio amateur regardless of where he or she resides in the world. Some of the newer Satellites like HO-68 and our very own SO-67 are still under commissioning and so are only available on a schedule basis. As for the ISS, it is available mostly in

(Continued on page 17)

(Amateur Radio in Space from page 16)
packet/APRS mode (see the previous issue of Radio ZS) and is occasionally available on voice. Much more than I expected too! See the ISS Twitter feed on my WebLog on http://www.nwinternet.za.org/zs6bne/myblog/, which gives information on the ISS's activities as logged by radio amateurs around the world. (Yes, web access is needed to access my WebLog)

Then comes the real crunch. I have worked a satellite - now what. Do I need to waste hours of my life waiting for the next pass, and if I am a good radio amateur, I may just get a short time to make a "hit and miss" contact - "you are 5 and 7 and good luck" or something similar. I do not consider it worthwhile, nor the expense. So I leave the satellite scene to those who will hog the frequency on each and every path.

With proper planning and practice, a Satellite would not be a "Hit and miss" affair. I have successfully used the Satellites during the RaDAR (Rapid Deployment Amateur Radio) contests because my planning was correct and I have the expertise, which only came as a result of perseverance and practice. It is all in the planning! I agree with Laurie, that a little more info can be passed other than signal reports but this is only the case where there is a busy channel and the satellite operators, being the well disciplined, caring radio amateurs they are, want to allow everyone the opportunity to use the Satellite pass time available, optimally!

I will only make one more statement - "Amateur Radio is HF." You can pass a short time on various modes that come to light every now and again but you get tired of them and you go back to HF.

In my experience of 35 years of amateur radio, I only really discovered what amateur radio really has to offer when I became involved in VHF/UHF activities. I too for many years thought VHF was only for ZR's. How wrong I was!

By the way I conducted a survey of opinion here in Durban where only two radio amateurs do any satellite work, and all said that they felt exactly the same as I do. ARE THEY ALSO WRONG? There is no FUN in it and that is why I do not work Satellites.

Laurie makes a few very interesting statements. The choice is ultimately yours!

CU on the Sats!

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Take your dummy load with a grain of salt

Frank van Wensveen, ZS6TMV/PA3GMP

A high power dummy load, even one for HF only, can be expensive and hard to find. With this simple design, you can build a dummy load in your own kitchen for a few Rand in less than an hour, which works amazingly well.

The idea presented here is not new, and not my own. It can be found in many places on the Internet, and it has been used professionally in high power transmission installations (e.g. shortwave broadcast stations) for decades. The principle is ridiculously simple: a saline solution (i.e. water with salt in it) has an electric conductivity depending on the salt content, but is to all intents and purposes non-inductive.

Translating this principle into a working dummy load is simple. Take an empty pickle jar, peanut butter jar, or any other glass or plastic container with a screw-on lid. Drill a hole in the lid and mount a suitable connector (I used the SO239 "VHF" type). Connect two wires to the connector pins on the inside of the lid and bend them so they sit inside the jar on opposite sides when the lid is screwed onto the jar. Apply a generous amount of silicone sealant to cover the inside of the connector, to prevent leakage and corrosion.

Fill the jar with tap water, but not so much that the horizontal sections

of the wires become submerged. Close the jar, connect an SWR meter and your HF rig to it and give it a few watts on the highest frequency you want to use the dummy load for, e.g. 30 MHz. Since we are tuning, we obviously use low power! The SWR will be whatever-to-one, depending on the quality and mineral content of your local tap water.

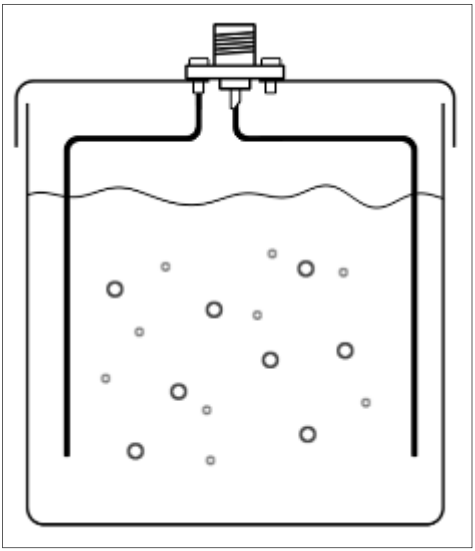
Open the jar again, and add a small pinch of salt *(you need very*

(Continued on page 21)

(Dummy Load from page 20)

little!) and mix well until the salt is completely dissolved. Close the jar again and repeat the SWR measurement. It should now be closer to 1:1 than it was initially. Repeat the procedure until you have reached an SWR of 1:1. You need to "creep up" on the perfect mixture, using only a few grains of salt at a time when you are almost there. If you add too much salt, remove a little water and replace it with clean tap water.

Seal the jar using silicone sealant, tape or anything you like. If the jar does not leak, the contents will not change, and your SWR will remain 1:1.



A few notes:

- The maximum amount of power that this dummy load can handle depends solely on the amount of water, i.e. on the size of the jar. I find that a 350 ml pickle jar does not heat up noticeably when I apply 100 W for several minutes. (My radio does, though! Keep in mind that most radios are **not** designed for continuous maximum output!) If you need to dissipate more power, simply use a bigger jar or, in extreme cases, a PVA paint bucket or such.
- *Do not overheat*. The worst case scenario is that the water will start to boil and the steam pressure will crack the jar or blow the lid off. Which is unnecessary - just use a bigger jar!
- This type of dummy load is only suitable for HF, up to 30 MHz or so - not for VHF/UHF.
- You might be able to increase the bandwidth by bending the wires, e.g. into a "V" or "S" shape. Experiment! I have not found it necessary to do this, as my SWR is better than 1,1:1 on all HF bands, which is fine for me. However, feel free to try it if you like.
- Since a glass or plastic jar provides no shielding, this type of dummy load will radiate slightly, and will be susceptible to "hand effects" when you pick it up while in operation. However, 99% or so of the RF energy *will* be absorbed by the water.
- Ton, ZS6ANA, who has worked with water-based dummy loads professionally, advises that washing soda instead of kitchen salt works as well, but is less corrosive. Unfortunately I have found that the genuine old-fashioned washing soda (i.e. sodium carbonate) may be hard to find these

(Continued on page 22)

(Dummy Load from page 21)

days, and that not all products sold as such are pure washing soda but instead contain other detergents that don't serve our purposes. (If the soda ash used for swimming pools consists of pure sodium carbonate, you might give that a try. Not having a pool myself, I have no idea if does or not. I only tried kitchen salt.)

- This is a perfect method to build dummy loads at oddball impedances. If you want to load a 4:1 balun, or you have an antenna system with an impedance of 360 or 480 ohms or whatever, finding commercial dummy loads for these impedances is difficult to say the least, but with this method, you can make any impedance you want. If you need a higher impedance than tap water can provide, start with distilled water instead and use a wide jar.

- After some time you may notice that, some powder has precipitated onto the bottom of the jar. The salt reacting with the copper wire usually causes this. Unless the SWR of the dummy load changes (and in my case it has not) this can be safely ignored.

Amateur Radio Direction Finding

John Willescroft, ZS6EF

Amateur Radio Direction Finding or also know as ARDF is big in Europe and starting to take off in the USA and an ideal primer for amateur radio amongst young people. In South Africa, it is not yet very popular but with the equipment described in this article is likely to get a boost.

The equipment described operate in the 433 MHz licence free spectrum which is ideal as it does not infringe on any amateur radio licence conditions.

The equipment consists of two items, a Transmitter and a Receiver. These items were originally engineered and built for the Hermanus Magnetic Observatory and ISA used in their outreach programme to schools.

The equipment is free of reflections making it ideal for direction find-

(Continued on page 23)

(ARDF from page 22)

ing. In addition, it can be used to demonstrate the properties of a Yagi antenna by only using the folded dipole and then adding one at a time the reflector and directors showing in each case what change the addition of the elements accomplishes in the polar diagram.

Receiver Details

The receiver is a TRF single transistor regenerative receiver with an audio amplifier to drive normal low impendence headphones.

R1 and R2 set the bias voltage for the base of the BF970 transistor. Capacitor C1 decouples the base so that it is at RF ground potential. The input coil at the collector of the BF970 transistor supplies the incoming RF signal to the BF970.

In addition, the BF970 is in oscillation at the squelch frequency. The squelch oscillations are maintained by the emitter inductance L2 and capacitor C2 forming an oscillation of approximately 40 kHz.

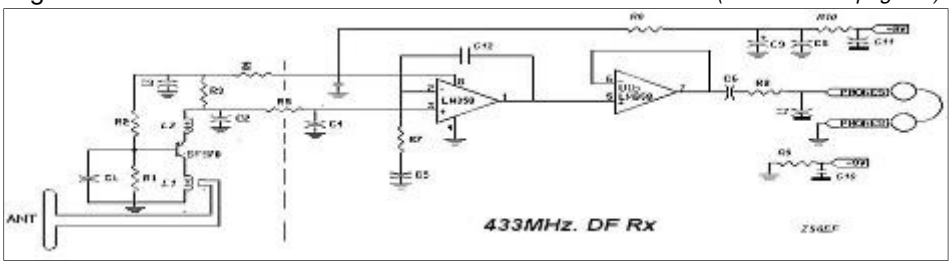
When the RF signal is supplied to the coil L1 from the antenna it reflects in the 40 kHz oscillation as a varying amplitude signal. This signal is integrated by R5 and C4 to produce the audio that is amplified by the LM358 operational amplifier in the second section of the receiver.

The first section of this amplifier produces a 5 – 50 mV signal at pin 1. In the second part of this amplifier, the LM358 acts as a high impendence amplifier to provide the large low impendence current drive to the headphones. C6, R8 and C7 provide matching and noise reduction for the headphones. Decoupling capacitors C8 and C9 isolate the RF so that a signal does not enter via the power supply.

This design has been purposely arranged so that the regeneration effect is controlled by varying the 9 V supply voltage from outside the Faraday cage thus avoiding the entry of RF signals.

The receiver supply is a 9 Volt battery a PPG3 or Eveready IEC NO

(Continued on page 24)

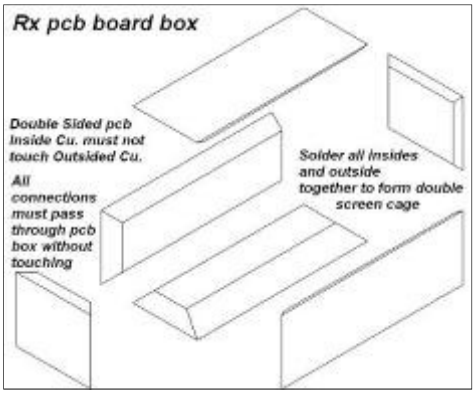


(ARDF from page 23)
6F22 commonly found in supermarkets.

Receiver Construction

Direction Finding Gear of any description must be constructed so that it is completely isolated from any outside RF signal, no signal must be able to enter the receiver from any other wire connected to the receiver except for the antenna input.

To do this we must place the receiver in a Faraday cage. The Faraday cage will give superior signal isolation so that only signals arriving at the antenna input and the receiver input coil will be received, signals arriving at the receiver wiring or control wires will be attenuated.



When you have built your receiver and have it running without an antenna (or any connection to the antenna terminals) use a handy talky and transmit on low power some 10 metres away. If a signal is not heard in the headphones, you will have a very good direction-finding receiver.

The image and track layout are designed specially to isolate certain areas and couple others. Note the PCB is double sided with copper covering the whole of the rear of the PCB. If you see a square pad then solder a wire though to the back.

Components List

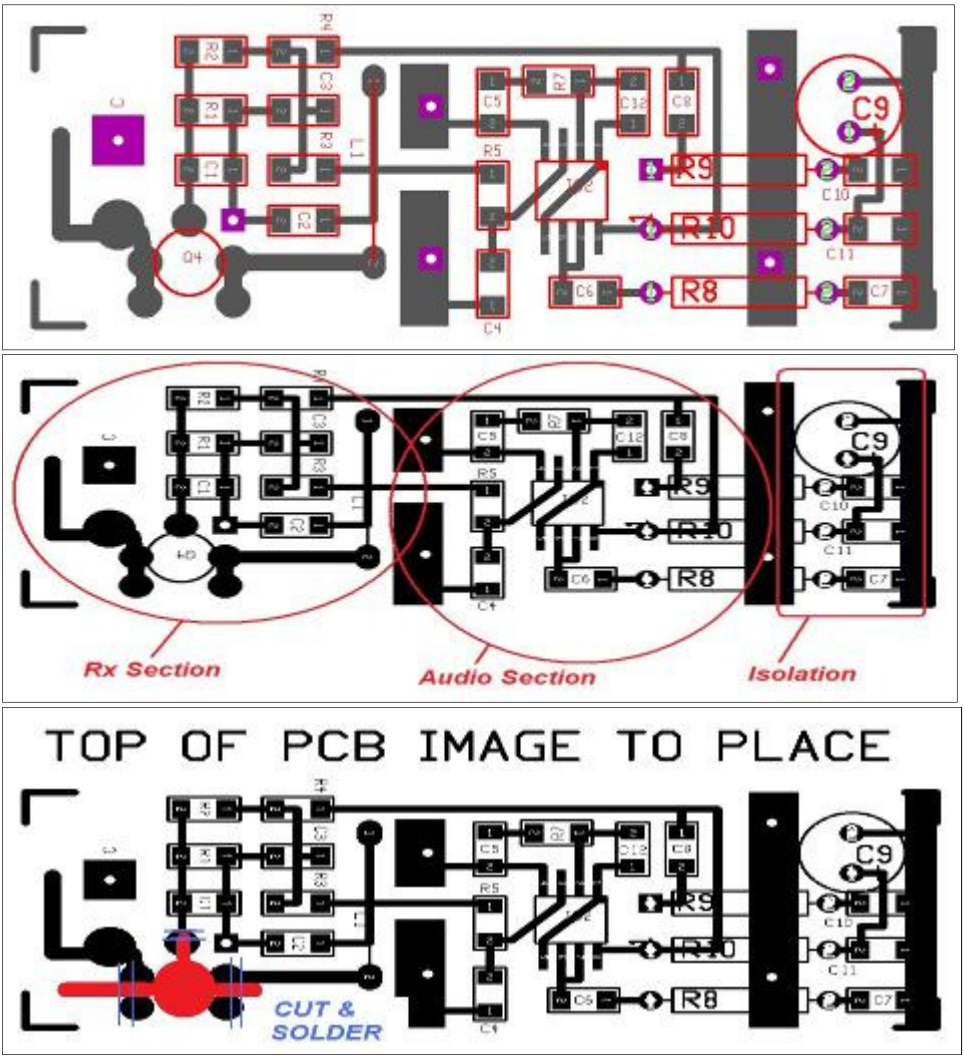
100 µF 16 V C150/300 1 C9
1 n SMD SM1206 2 C4 C7
100 n SMD SM1206 5 C1 C3 C8 C10 C11
100 pF SMD SM1206 1 C12
220 pF SMD SM1206 1 C2
470 n SMD SM1206 2 C5 C6
SMD LM358 ic SM8T 1 IC2
CHOKE 1 uH YELLOW Choke 1 L1
winged BF970 BF970 1 Q4 Note not the same as the TX
15 ohms SPIRREL 0,25 W R500P70 3 R8 R9 R10
100 SMD SM1206 1 R4
6k8 SMD SM1206 2 R5 R7
33 k SMD SM1206 1 R3
47 k SMD SM1206 1 R1
100 k SMD SM1206 1 R2

Special Construction Notes

Cut tin plate barriers to fit the inside of your PCB receiver housing and solder them with wires from the plain copper side of your PCB, to the places provided. Then when in place and fitting well to the inside of the PCB housing solder along the length of the PCB area to make a solid contact. Check that you do not make a short onto the tracks that pass beneath the tin plate barriers. Within the isolation area, make sure the resistor

Receiver PCB

(Continued on page 25)



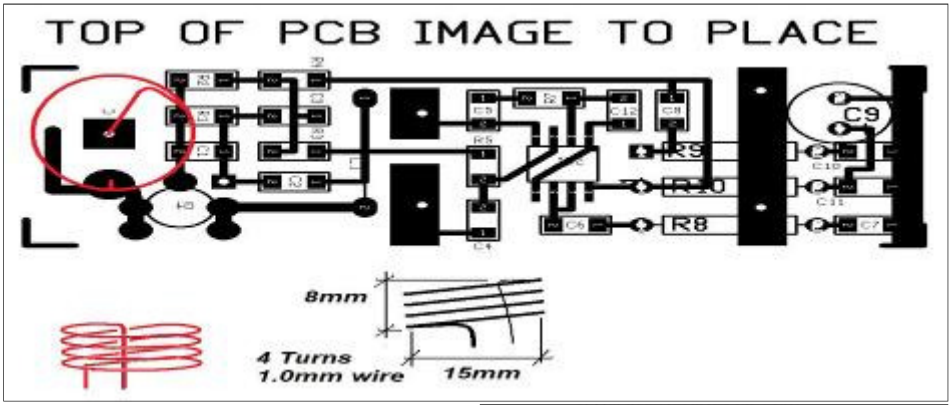
(ARDF from page 24)

bodies do not short but make the fit as close as possible.

The wire used to make the coil is not critical in size, 4 turns is a must. The size and shape of the coil is important. On the collector tab of the transistor is an additional track that forms a capacitor with the FR4 PCB to the ground plane. This capacitor and reshaping the coil size is what you adjust to get onto the 433 MHz band.

Coupling the coil to the antenna

(Continued on page 26)



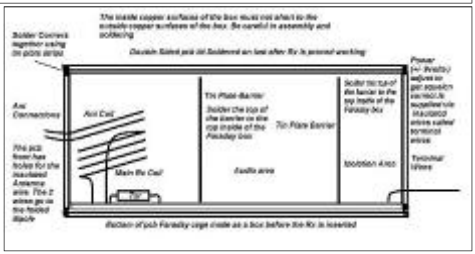
(ARDF from page 25)

Please take note of the way in which the antenna is coupled to the main receiver coil. The coil must not be too close, 1 mm away is ideal for the best coupling. Over coupling will cause oscillation and desense the receiver. The coupling coil is fitted when the receiver is complete and has been tested out of its box.

You can use a key remote (garage door remote) to tune the main coil to frequency; it makes an ideal signal generator. Do not bring the remote too close to the receiver, as you will overload it. The greatest distance away you can hear the remote the better your tuning will be. You will have to retune slightly the main coil when the receiver is in its box just before you close and solder the lid tight.

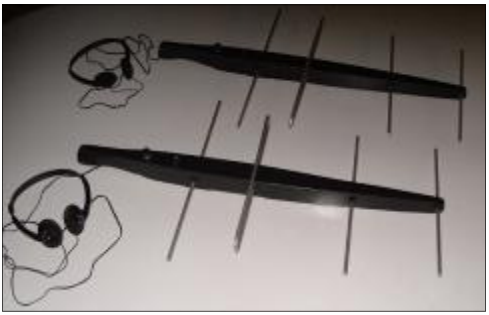
Antenna coupling coil arrangement

The antenna coils comes through holes in the end of the box. Insulated wire must be used for the antenna coil. Ordinary single core solid insulated wire is fine, such as telephone wire.



The Antenna

This is the diagram of antenna measurements.

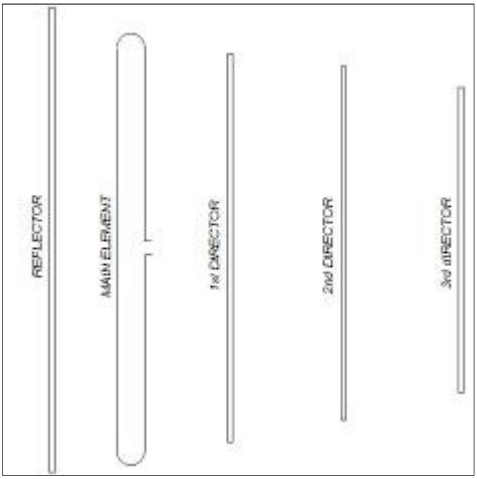


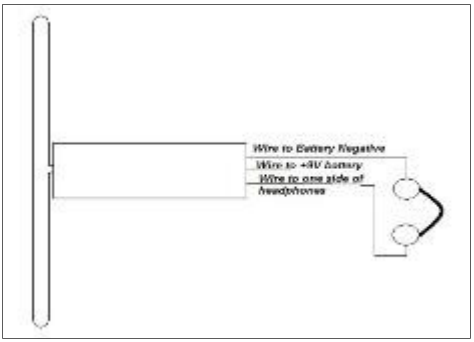
Reflector 388 mm tip-to-tip 8 mm Aluminium Tube

Main Element folded dipole 30 mm space inside 346 mm tip-to-tip 8 mm aluminium tube

1st Director 312 mm tip-to-tip 8 mm aluminium Tube

(Continued on page 27)





It is important to keep the lead from the antenna coil to the main element as short as possible.

(ARDF from page 26)

2nd Director 296 mm tip-to-tip 8 mm aluminium Tube
3rd Director 281 mm tip-to-tip 8 mm aluminium Tube

The elements are made from 8 mm tube. Sharp bends of the main element are best done soft and then cold i.e. heat up the tube to 70 degrees C, then let it cool. Make a sturdy mandrill and bend the tube around.

Cut the tube of the main element longer in length than is required, then bend each side around making sure the outer curve of the bend stays on the correct dimension. Then when the tip to tip dimension is correct find the middle and cut the short sides so that you have a gap between the ends of 1,5 mm.

Drill the tube each side of the gap as near as possible to the gap end of the tube, to take a 3 mm short metal screw though one side of the tube. This is so you can connect the wires from the antenna coil of the receiver.

Transmitter Details

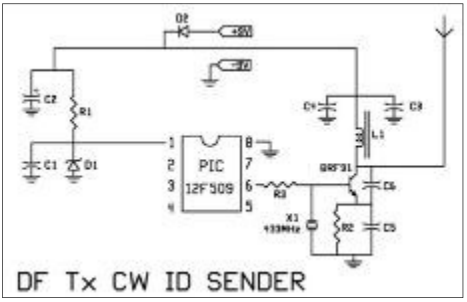
The transmitters contain a SAW controlled oscillator using a single transistor.

The coding for each transmitter is provided. The transmitter uses an 8 pin PIC or peripheral integrated controller.

Five volts is supplied to the PIC

by a zener diode D1. Noise across the diode is reduced by the decoupling capacitor C1. The average current taken by the PIC is 3 mA. The 5

(Continued on page 28)



(ARDF from page 27)

V is supplied to pin 1 and the ground connection to the PIC is pin 8.

Pin 6 is the only other pin connected to the device and this gives out the code that the transmitter is sending.

When the voltage on pin 6 goes high the transmitter is turned on and when it goes low it is turned off. X1 is the SAW resonator; you can get plenty of these from old remotes. The SAW is connected to the base of the transistor and returned to ground. The SAW has a low impedance (nearly a short) at any other frequency other than the one you want i.e. 433,5 MHz. Therefore, when the transistor oscillates it can only do so on this frequency. Make sure that your SAW is on 433,5 MHz because some key rings use 403,5 MHz. L1 is 3 turns around a 3 mm screw driver with approximately 0,5 mm wire you will adjust this coil to give you maximum output and range.

The capacitors C3 and C4 are both 100 nF ceramic capacitors surface mount. These caps are the only thing that will stop your transmitter operating properly.

C5 normally 3,3 pf will depend on how close and short your PCB tracks are on your layout. If you have a poor layout, you may not need a capacitor. You can twist together two pieces of insulated wire in order to form a capacitor. When your transmitter is working and giving good range, you can measure the capacitance and replace it with the correct value. You will then see to range increase further.

The components list for the transmitter is as follows.

3,3 pF CON CD100P60 1 C6
68 pF CON CD100P60 1 C5
4,7 µF 16V C150/300 1 C2
100N SMD SMC1206 3 C1, C3, C4
1n4148 SMD SMC1206 1 D2
5 V ZENER SMD SOT23 1 D1
3 turns see text R400P70 1 L1
12F509 with firmware SO8 1 PIC
BRF91 WING SOT414 1 Q3 Note not the same as the RX
10 ohms SMD SMC1206 1 R2
1k5 SMD SMC1206 1 R3
2k2 SMD SMC1206 1 R1

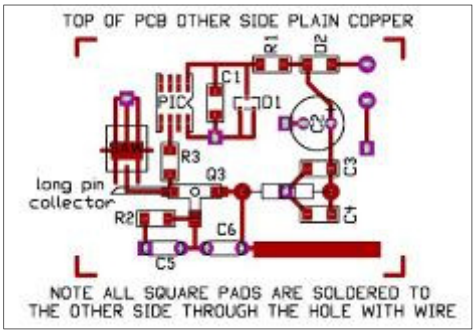
The PCB Layout

The transmitter can housed in any none conductive box. The plastic boxes that you buy at the plastic stores are ideal and you have a great variety to choose from.

Some things to take note of with the Transmitter

(Continued on page 29)

(ARDF from page 28)



The transmitter will not oscillate without its antenna fitted. The transmitting antenna must be exactly 173 mm long and made from 8 mm Aluminium tube.

Drill and connect a metal screw securing a solder lug. The wire attaching the transmitter from the solder lug to the aluminium must not exceed 15 mm, the shorter the more power and easier it is to start up.

Note, the antenna is connected directly to the transistor BRF91 collector, so insulate it properly for static as well as detuning the transmitter by hand effect.

The PIC program

The following is the source code for the transmitter PIC. If you have a programmer you can take the hex file below, type it in and just program the PIC.

If you have MPLABS, copy this source file into MPLAB's. Set up MPLAB's for the 12F508 or 9 then compile and program.

This is very easy to achieve. You can change the number of beeps the transmitter gives out by deleting the call tone statement.

The firmware source code has 5 beeps, you may need only one. Keep the code in the same order and set up the number of call tones that you need to make beeps so your hunters can identify the transmitter.

When you have changed the program, then build and program and away you go.

Good Hunting and have lots of fun.

```
;403DFtx.asm tx433MHz remote
;using 12F509
;4MHz.int osc ius /instr 12f509-smd
WDT on
;pin1 vdd+5V pin5 5,2
;pin2 5,5 pin6 5,1 tx
;pin3 5,4 pin7 5,0
;pin4 5,3 vss gnd
list p=12F509 ;
__CONFIG B'000000001110'
Setup movlw .210
movwf 5 ;cal
bcf 3,5 ;
clrf 1
clrf 6 ;
movlw B'11111101'
tris 6
movlw B'11001111' ;
option
goto Begin ;
;----------------------;
d1sec movlw D'21' ;1sec
movwf 007h ;
movlw D'23' ;
movwf 008h ;
movlw D'6' ;
movwf 009h ;
goto d
dtx movlw .244 ;1.5ms
movwf 007h ;
```

(Continued on page 30)

(ARDF from page 29)

```
movlw D'2' ;
movwf 008h ;
movlw D'1' ;
movwf 009h
goto d
d100ms movlw .53 ; was d150ms
movwf 007h ;
movlw D'131' ;
movwf 008h ;
movlw D'1' ;
movwf 009h
goto d
d550us movlw D'151' ;550us1.176us
movwf 007h ;
movlw D'1' ;
movwf 008h ;
movlw D'1' ;
movwf 009h
nop
nop
d decfsz 007h,1 ;
goto d ;
clrwdt ;
decfsz 008h,1 ;
goto d ;
decfsz 009h,1 ;
goto d ;
dend retlw 0 ;
;-----------------------;
tone movlw .255 ;425ms
movwf 030h
lop1 bsf 6,1
call d550us
bcf 6,1
call d550us
decfsz 030h,1
goto lop1
retlw 0
;-----------------------;
Begin call tone ;1 tone change the number of tones for your ID
call d100ms ;this one has 5 tones delete those not needed
call tone ;2 tone change the number of tones for your ID
call d100ms
call tone ;3 tone change the number of tones for your ID
call d100ms
call tone ;4 tone change the number of tones for your ID
call d100ms
call tone ;5 tone change the number of tones for your ID
call d1sec
goto Begin
;-----------------------;
end
end of source file
start of Hex File
:020000040000FA
:10000000D20C2500A30461006600FD0C0600CF0C95
:100010000200380A150C2700170C2800060C2900CE
:10002000270AF40C2700020C2800010C2900270ADB
:10003000350C2700830C2800010C2900270A970C97
:100040002700010C2800010C290000000000E70235
:10005000270A0400E802270AE902270A0008FF0C21
:10006000300026051F0926041F09F002310A000886
:100070002F0918092F0918092F0918092F0918091C
:060080002F090A09380AED
:021FFE000E00D3
:00000001FF
```

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Radio Scouting

Dave Gemmell, ZS6AAW

Some radio amateurs do not think only of the rigs.

A friend of mine in the Pietermaritzburg area, Dave McCash, is now sporting a new call sign ZU5SAM. He actually chose the call sign using letters from his wife's first name. Welcome to the ranks Dave and Sam.

This paragraph gives me an excuse to introduce the next topic!

ZR and ZU Activity on the CW bands

It would seem that ZRs and ZUs have full access to the 3,5 MHz band (80 metres).

As far as getting started on CW, 80 metres seems to be the safest 'bet.' It is open to ZR and ZU licence holders. As its been repeated often enough, especially in this column, with the minimum number of components you could be on the air! Yes, 1 transistor, 4 resistors, 3 capacitors, an inductor, a choke and a suitable crystal. You are on the air! In addition, with a transmitter you made yourself. Even with fewer parts, if you like pushing your luck! Leave out the Pi coupler and work straight into the antenna! Not really legal, but it works!

For more details, read the article by Dave Igram, K4TWJ, on page 7 of the September/October 2008 issue of Radio ZS.

There is a crystal available, namely, 3,579 545 MHz that should be fairly available in old digital equipment and even obtainable from the better grade computer repair stores.

1,8 MHz band (160 metres)

It is a pity that ZUs are not allowed to operate on 160 metres as another QRP crystal, 1,843 2 MHz, is available from a similar source as the 80 m one. Here again, the beginner, and Old Timer, can have great fun getting on the air with the minimum number of components. The only difference between the 80 and 160 m versions of the K4TWJ design would be values of the capacitors and inductor in the pi coupler.

54th Jamboree on the Air / 14th Jamboree on the Internet 2011

Visit www.jota.sub.cc, it is a JOTA only website, and go into the Radio-Scouting Library and find the section 'All World JOTA Reports.' Have a look at the various reports over the last 50 years. The older reports are typed. Yes! Typed, with that that good, old-fashioned machine called a typewriter!

(Continued on page 32)

(Radio Scouting from page 31)

The following scout web addresses are very interesting!
www.jota.sub.cc - JOTA only website
www.jotajoti.org and www.joti.org - JOTI only website
www.scout.org - World Organisation of the Scout Movement (WOSM) website for general Scouting information.

Here's hoping you make this Christmas season and really Happy and Blessed one. The festive season is very much like amateur radio, you only get out of it what you put into it! That goes for having a prosperous New Year as well! Do not forget your resolution to send more information to this Column as well! Remember it is yours as well! There are three ways of getting the news to me! dave@zs6mus.org.za; PO Box 77, Irene, 0062 and/or telephone 012 667 2153

A Simple Universal Car Battery Clamp

Frank van Wensveen, ZS6TMV/PA3GMP

While a standard car battery is not ideal for applications other than starting a car, it is sometimes the most convenient (or only) portable power source available - especially at the currents required by the average radio. Unfortunately, the round pillar-type poles with which a car battery comes equipped are usually awkward when you want to make an impromptu connection with a wire that powers a radio or connects to some other 12 V appliance.

I have found the solution in a pair of cheap battery clamps. I removed the rather thin wires that were crimped onto the clamps, and drilled a 3 mm hole in the body of the clamp. In this hole I fitted a banana plug chassis mount (the standoff type, see photo) simply by sticking the threaded rod of the standoff through the hole, adding a locking washer (!) and fastening the nut. In my experience, this type of chassis mount will handle a few amps when used with a banana plug, and 20 amps or more (depending on the model and size of the chassis mount) when used with a lug. Simply putting these clamps onto the car battery poles effectively gives you a 12 V battery that will accept banana plugs or cables with lugs instantly. Making

(Continued on page 33)

(Battery Clamp from page 32)
these clamps is a five-minute job, and having them around could save you considerable headaches sometime in the future. Note: be sure to use a fuse, as the short circuit current of a car battery can easily exceed 100 amps or more.

The Museum Piece

Dave Gemmell, ZS6AAW,
and the Old Timers

Silent Key, Carol Siedle, ZS5YG, on 26 October 2010

It was difficult to decide in which Column to place this notice as Carol, ZS5YG, was on the air on many occasions running JOTA station for the Girl Guide Company in Amamzintoti. He was one of my first contacts in 1982.

During WW 2 he also spent some time at Swartkops and Waterkloof Air Force Bases. After joining the South African Air Force, he did a bit of "square bashing" at AFB Swartkops. After technical training at 72 Air School, Milner Park, Johannesburg he was posted to the HQ Wireless Telegraphy Station at AFB Waterkloof. One of the chores here was to help upgrade the antennas on Dakotas and Venturas. He was also involved with maintaining HF Direction Finding equipments around South Africa and Rhodesia.

He said that his one claim to fame was calibrating the automatic DF on Field Marshall Jannie Smut's Avro York on the apron at AFB Waterkloof.

Recording Your History

I remember starting standard eight (now grade 10) and being faced with those subject choices! I decided to drop history in favour of botany because the former would entail writing essays! I considered those we had to write for English and Afrikaans were sufficient!

It actually took me 31 years to realise that an article for Radio ZS is nothing more than a list of facts written in your own words. Writing articles/essays, this way can be fun! Of course, the language you use is very important! So are the units used! Just ask George Honnibal, ZS6NE!

Now the question is how I got the "wrong" idea, as so many students still do. I suppose I will never hear the complete truth, 1955 was quite some time ago! However, I guess, the same happens these days.

I will meet you guys halfway! Send me your contribution in point form (i.e. facts only) and I will type it out in full. The final copy will be sent back to you for approval before publishing.

(Continued on page 34)

(The Museum Piece from page 33)

The Wireless Hut

The opening "snippet" of news is not so good! The good news is that the equipment remained dry. During the recent rains of October, the Hut 'sprung a leak.' Well the old problem seems to have raised its ugly head again. The down pipe has come loose from the gutter about 10 metres above the tarmac. As the water runs down the sloping side of Hangar 3, it enters just about every seam or hole in the 1922 corrugated iron. Fortunately most of these holes seem to be near the bottom as the table tops inside the hut are dry but there is a large puddle on the floor beneath the our operating table! I have always wanted to operate 'maritime mobile' but this is ridiculous!

As I said at the bottom of the Radio Scouting column, there are three ways of sending historic information for YOUR column. PO Box 77, Irene, 0062; dave@zs6mus.org.za and/or telephone 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 môre ontvou,
Eer hul herinnering – ons sal onthou."

Carol Siedle, ZS5YG
Mike van der Westhuizen, ZS6UP

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Gauteng

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Friday evening: river cruise on the Vaal river

Bloemendal MW radio transmitter visits

SUPER flea market (Biggest EVER in the Vaal)

SARL Gala evening at Riviera Hotel

Bring and Brag equipment exhibitions

Industry Sponsors and Suppliers

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Biggest Ham meeting in Gauteng !

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