

CAMBEAM

December 2010

Editorial

Welcome to another edition of Cambeam, the infrequent journal of the Cambridge & District Amateur Radio Club.

It's time to start thinking about what to do during the long winter nights. The committee are looking at the possibility of another club project. The LCR meter by Dave Adshead, M0GUM, proved popular and was a great design, mine sits within arms reach on my bench and has proved very useful. There are still a few kits available so get one while you still can. This time the candidate kit we are trialling is a software defined radio (SDR). It's called the SoftRock Lite II and is a design and kit by Tony Parks, KB9YIG. See the article later in this edition.

CDARC Training Courses

Peter Howell, M0DCV, has some great new plans for training. We are hoping that this will boost club membership. Here's Peter's latest news on training:

Within CDARC, as in other amateur radio clubs, we are developing three training courses. These are:

A Foundation Licence Course, an Intermediate Licence Course and an Advanced Course.

The Foundation Licence is the entry level into amateur radio. Foundation Licence holders have an M3 or M6 callsign. In CDARC we have already run several successful weekend courses for the Foundation Licence at Foxton Village Hall. The weekend culminates in the examination. We mark the papers immediately after the exam and candidates know before they leave if they have gained their first callsign.

We will be running our first, pilot Intermediate Course early in 2011. This is the next level of qualification and successful candidates may apply for a 2E0 call (In England, or 2M0, 2W0, 2I0 etc. as geographically appropriate.) To take an intermediate exam the candidate must hold a Foundation Licence.

Towards the end of 2011 we will run our first Advanced Course where an Intermediate Licence holder can study and pass the exam to apply for a full UK licence in the M0 series.

The plan is to run four training courses each year as follows:

Spring: Foundation Course;

Summer: Intermediate Course;

Autumn: Foundation Course;

Winter: Advanced Course.

This program is, of course, adaptable depending upon the numbers applying. The principle is that within one year a candidate can obtain through CDARC a full licence from scratch. We have planned for two Foundation Courses each year as we believe that we should encourage newcomers into the hobby by providing more opportunity to obtain a licence.

The CDARC website has a Training Section which the PRO is building. Here we will publish our schedule of courses and the course notes (pdf format) that accompany each course. The Foundation notes are already in use. The Intermediate course notes will be on the CDARC web pages by the end of November. The Advanced Licence support material should be available from Spring 2011. (Or whenever I finish them!)

Neil (G4HUN) has flagged the CDARC training availability on the RSGB Region 12 web pages and so we should see an increase in applications over time from our region.

The cost of the courses comprises the RSGB / Ofcom fixed charge and a CDARC cost element to

cover the hire of Foxton Village Hall, teas, coffee and small equipment costs. We aim to break-even with the CDARC costs over the period of a year.

Question: Would You Like Me To Help?

Answer: YES PLEASE!

We have a number of club helpers who already assist over the weekend courses and with running the exams. We can always do with more help within the structured program. This is a sample of the help we need:

Running the Practical Sessions.

For the Foundation this is both at Foxton (A end) and from your home shack (B end) in providing managed, HF QSOs to provide practice in operating procedures. In addition there is the VHF QSO practice with hand-helds and antenna matching demonstrations.

For the Intermediate we require help with running the Saturday “build day”. This will probably be a kit-based receiver which will also be a club project as well.

Learning Support.

For our planned Advance Course (and possibly the Intermediate Course as well) I would like to introduce “Learning Support Mentors” or “Learning Buddies”. These volunteers would provide an informal, ad-hoc, one-to-one support for candidates as they self-study and learn over the course. (eg. If the candidate needs a bit of extra support with Ohms Law, or to talk through a procedure, etc)

Demonstration Equipment Construction.

If you can raid your junk boxes and build demonstration equipment then that would be a really useful learning aid. (Immaculately built of course!). The types of equipment we need include:

Simple dc circuits to demonstrate Ohms Law, voltage drops, series and parallel resistor networks,

Single transistor amplifier – common emitter configuration,

Single transistor switch,

A VFO and a crystal oscillator,

Simple diode rectifier circuits to show: half-wave rectification, full-wave rectification, partial smoothing, full smoothing.

An AM modulator, an FM modulator, a side-band generator,

An LC circuit to show parallel and series resonance, ringing, low pass filter, high pass filter.

If you look at the syllabus for the Foundation and Intermediate courses you will get a whole load of ideas. (A Google search will bring up the documents.) Don't worry about making it work at RF. It's the principal we need to show. (Modulating a 20kHz carrier with 500Hz will be fine – and so on with much of the other demonstrations.)

Becoming An Instructor.

If you would like to try your hand at being a principal instructor and formally delivering parts of a course to students you will need to be accredited with the RSGB. It costs nothing and the RSGB pay for the CRB check. (Under current legislation this is necessary as we do have students who are under 16 years of age.)

So, if you want to get involved in any part of this club endeavour please speak with me on any Friday or e-mail me via the Training Page on the CDARC website. The great thing about the Foxton-based course is the unlimited supplies of tea, coffee and biscuits (and you get to meet some interesting folk as well!)

Peter M0DCV

M0BLP - SoftRock Lite II trial

The SoftRock is a software defined radio and consists of a small PCB that sits between your antenna and the soundcard line input on your computer. Along with some free software that you run on the computer it provides many of the features of a conventional HF receiver. It is a very economical route into SDR costing only \$22.

I bought a kit from Tony Parks via his website www.kb9yig.com.

Build notes, almost Heathkit style, are at www.wb5rvz.com/sdr/sr_lite_ii.

Kit assembly time is estimated as being between 2 hours for experienced constructors and 8 hours 13 minutes for a beginner religiously following the build notes.

The latest kit comes with components to build for one of a number of amateur bands. You can select from 160m, 80m, 40m, 30m or 20m. I chose to build for 30m as I wanted to try the device for reception of [WSPR](#) signals and that is a popular band for WSPR. WSPR use is in the 200 Hz range between 10.140100 and 10.140300 MHz. The 30m SoftRock, when used with a soundcard that samples at 48 kHz, covers 10.100 to 10.148 MHz so incorporates the WSPR section.

The SoftRock can be powered from a PP3 battery. Mine consumes about 24mA. It acts like a direct conversion receiver mixing RF down to audio frequencies. The local oscillator is a fixed frequency so all tuning (and demod) is actually done in the software. The PCB outputs two audio signals called I and Q which stand for in-phase and quadrature. These go to the stereo left and right channels of the soundcard's line input and some clever digital signal processing (DSP) on the PC does the rest. For a soundcard sampling I & Q at 48 kHz one can view a 48 kHz wide chunk of the RF band you want to receive. A simple click of the cursor selects a particular frequency within the 48 kHz chunk. With the [Rocky software](#) you can demodulate CW, SSB and BPSK-31. A waterfall plot allows the entire 48 kHz chunk to be seen in one go so you can immediately see where all the activity is and home in on it.

I have found the crystal based local oscillator to be stable enough to allow reception of the very narrow WSPR signals. For that I switched to the WSPR version 2.1 software by Joe Taylor, K1JT.

So what else is it good for? If your Morse is a bit rusty why not try QRSS. That's very slow Morse (too slow to hear) where the dots and dashes are on one frequency and the spaces on a slightly different frequency. You can read the Morse visually off the waterfall plot.

It is surprising how a weak signal submerged in noise stands out. QRSS transmitters often use less than a Watt!

Shack Tidy Up

We are making some changes in the club shack. In preparation for intermediate license training we feel the workbench in the shack needs some extra facilities to cope with the soldering of surface mount components.

Club members will now have access to a long reach microscope. This makes soldering SMT components much much easier.

A temperature controlled iron with fine tip will also be taking it's place on the bench.

The shack will be undergoing a couple of rounds of tidying up to

- remove the accumulated junk
- put up a couple of aerials
- make the operating position more comfortable and better organised

If you know of any local companies or organisations that might be willing to help fund some of the new facilities then please do get in touch with Mike, the Club's Treasurer, who will make contact.

HELP NEEDED

Ex club member David Matthews of Harston is going QRT.

He has a couple of **home-brewed pole assemblies** in his garden that are free to anyone prepared to safely take them down.

One pole is ~30 feet and a second is ~28 feet.

There's also lengths of black PVC coated wire and 300 Ohm (windowed) ladder line feeder to go with the poles.

David would also like to get his **Yaesu FRG 7700** fixed.

It has a fault on SSB (BFO?) but works otherwise.

It is a general coverage dual conversion PLL frequency synthesized receiver covering 15KHz to 30MHz. AC only with 12 hr clock with AM/PM sleep timer and programmable on/off timer.

If someone would like to buy it he is asking £200 or near offer. Original box.

If you can help please ring him on 01223 871142.

Club Meeting Feedback

The committee has received suggestions that having our club meetings on a different night might improve numbers attending. We want to give club members (and current non members who might otherwise join or rejoin the club) an opportunity to provide feedback on this. If we can collect enough evidence we shall raise this as an agenda item for the next AGM.

If you know someone who might be interested in joining the club, please pass on a copy of this form to them. Please hand in the form at a club meeting or send to: Mike Addlesee, CDARC Treasurer, 36A The Limes, Harston, Cambs CB22 7QT.

Cambridge and District Amateur Radio Club

Membership Vote on the convenience of different days for meetings

Member's full name

Vote on the convenience or otherwise of the various evenings for you. Give "5" to the most convenient, "4" to the second most convenient, etc., and 1 therefore to the least convenient. Please insert ALL the numbers 1 to 5.

Monday	Tuesday	Wednesday	Thursday	Friday

Now vote on the frequency of meetings that you prefer. Use the number 3 for the frequency you prefer, 2 for the next best and 1 for the one you like least of all. Please use ALL the numbers 1, 2, and 3.

Every week	Every fortnight	Once a month

CDARC Notice of AGM

This is formal notice of the Annual General Meeting (AGM) of the Cambridge and District Amateur Radio Club (CDARC). It is being sent to all members of the club, of all classes of membership and is independent of the normal email distribution list. This year's AGM will be held on Friday 14th January 2011 starting at 8:00pm at the Coleridge Community College, Radegund Road, Cambridge.

As required by the constitution, all the present committee members will stand down and a new committee will be elected. Existing members may reapply to be re-elected. Nominations must be on the attached form with proposer and seconder signatures. Please return your nomination forms to the Club Secretary on the night. No one may be nominated without his/her permission.

The present committee are:

Arthur Bolton - Chairman

Ian Alexander - Secretary

Mike Addlesee - Treasurer

Lawrence Micallef - Public Relations Officer

Peter King - Ordinary Member

Ron Hunstman - Ordinary Member (Co-opted)

The meeting will be chaired by the President (John Bonner). Minutes will be taken by the Current Club Secretary.

The Agenda is as follows:

1. Process non-members who wish to join tonight
2. Outgoing committee's annual report
3. Awards
4. Old committee stand down
5. Appointment of Chairman
6. Appointment of Secretary
7. Appointment of Treasurer
8. Appointment of Public Relations Officer
9. Appointment of Ordinary Members
10. New committee address
11. Setting of membership fee(s) for the forthcoming year
12. Discuss feedback on change of club meeting weekday and frequency
13. Any other business
14. Meeting closes

The process for an election is as follows:

1. Candidates shall leave the room during the vote

2. Fully paid up members of any class except Junior (Full, Family, Country, Honorary) are eligible to vote. Junior members (under 18s) are not eligible to vote. The candidates themselves are not eligible to vote.
3. Members will vote by writing one name on a piece of paper.
4. The Chair of the meeting will count the votes unless the vote is for a position held by the Chair or the Chair is a candidate in the election in which case a suitable alternative will be agreed.
5. In the event of a draw, the membership will be asked to re-vote between the two or more candidates with the highest (equal) number of votes.

**Cambridge and District Amateur Radio Club
Committee Member
NOMINATION FORM**

Please fill in the appropriate section below...

CHAIRMAN _____ Signature _____

Proposed by _____ Seconded by _____

SECRETARY _____ Signature _____

Proposed by _____ Seconded by _____

TREASURER _____ Signature _____

Proposed by _____ Seconded by _____

P.R.O. _____ Signature _____

Proposed by _____ Seconded by _____

ORD. MEMBER _____ Signature _____

Proposed by _____ Seconded by _____

CDARC Programme 2011

Here is the programme as it stands at the moment. If you could be urged to give a talk please let a committee member know. We are particularly interested in hearing from anyone who would like to contribute to a forthcoming series of informal talks/demonstrations on favourite, historic or interesting rigs:

2010

December 17th Christmas Mince Pie Evening (& mini quiz)
Club closed over Christmas & New Year i.e. 24th & 31st
December but please call in on the club net on Sundays mornings,
3.62MHz.

2011

January 7th Talk "Baluns Re-Visited" Ian G4AKD
& Intermediate Course Enrolment
January 14th Club "Annual General Meeting" with refreshments
January 21st Morse for all abilities
January 28th On air operating evening
February 5th & 6th Intermediate Course Practical Weekend
March 4th Intermediate Course Exam
+ Informal training session on OpenOffice by Mike M0BLP
March 13th C&DARC Annual Rally
Wood Green Animal Shelter,
Godmanchester, Huntingdon.
April 4th & 5th Foundation Course Weekend