Cambeam

Spring 2016 Edition

The Cambridge & District Amateur Radio Club Magazine

A very warm welcome to the Spring 2016 edition of Cambeam. It has been several years since the last edition of Cambeam due in part to club information being readily available on the CDARC web site (www.cdarc.co.uk), however, not everyone has access to a computer or maybe you just like to sit with a hot drink and have a read, so by popular request, here it is.

Cambeam is distributed by e-mail and will be available on the club's website as a pdf document for downloading. For members who prefer a printed copy or do not have a pdf reader, Cambeam will be posted out using Royal Mail on request.

May we thank all contributors for an outstanding effort and we hope you enjoy this issue and please pass all comments or ideas for future issues to publicity@cdarc.co.uk.

Interested?

If you're reading and not a member of CDARC, keep on reading. Amateur Radio literally has something for everyone. The club meets from 19:30hrs with presentations starting at 20:00hrs every 2nd & 4th Friday of the month at:

Coleridge Community College,
Adult Education Centre,
Radegund Rd,
Cambridge,
CB1 3RJ.
(Google Earth Map)

If you are a Short Wave Listener or licensed ham, we have scheduled nets -

(some) Sundays at 08:30
2m 144.180MHz USB (H)

Sundays at 10:30
Either **40m 7.0875MHz* LSB** ***or*** **80m 3.620MHz* LSB**

Sundays at 11:30
2m 145.550MHz FM (V)

(some) Wednesdays at 20:00
2m 145.550MHz FM (V)

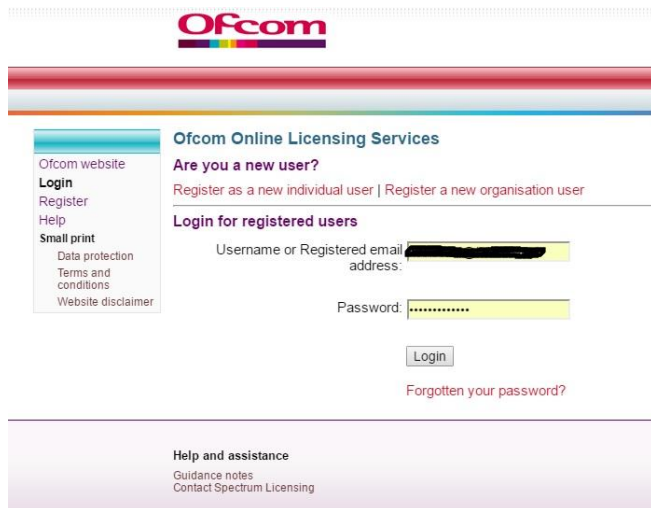* Frequency may be varied by a few kHz to avoid other users.

Within this Issue-

Ofcom

R evalidating your licence with Ofcom.

This has to be done no later than **every five years**. If you get into the habit of revalidating your licence annually, it makes it less easy to forget in the future.

Step 1 – Go to the Ofcom
Website at https://services.ofcom.org.uk/

Ofcom

Ofcom Online Licensing Services

Ofcom website
Login
Register
Help
Small print
  Data protection
  Terms and conditions
  Website disclaimer

Are you a new user?
Register as a new individual user | Register a new organisation user

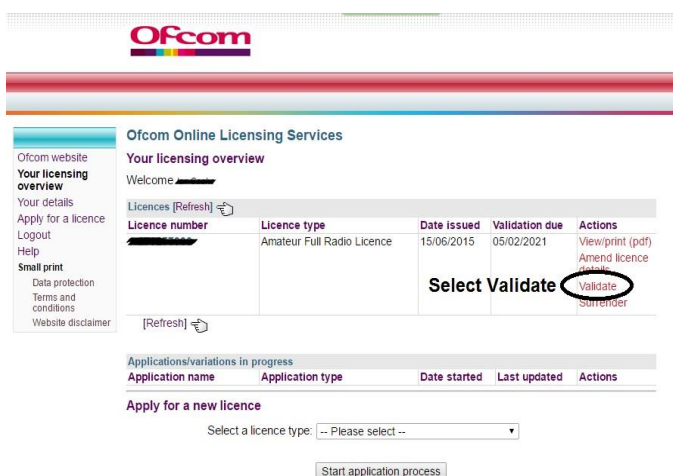**Login for registered users**

Username or Registered email address:

Password: ....

Login

Forgotten your password?

Help and assistance
Guidance notes
Contact Spectrum Licensing

Step 2 – Enter your details and Login.

Ofcom

Ofcom Online Licensing Services

Ofcom website
Your licensing overview
Your details
Apply for a licence
Logout
Help
Small print
  Data protection
  Terms and conditions
  Website disclaimer

Your licensing overview
Welcome

Licences [Refresh]

Licence number	Licence type	Date issued	Validation due	Actions
	Amateur Full Radio Licence	15/06/2015	05/02/2021	View/print (pdf) Amend licence details
			Select Validate	Validate Surrender

[Refresh]

Applications/variations in progress

Application name	Application type	Date started	Last updated	Actions

Apply for a new licence
Select a licence type: -- Please select --

Start application process

Step 3 – Select Validate on the right hand side.

Ofcom

Ofcom Online Licensing Services

Ofcom website
Your licensing overview
Your details
Apply for a licence
Logout
Help
Small print
  Data protection
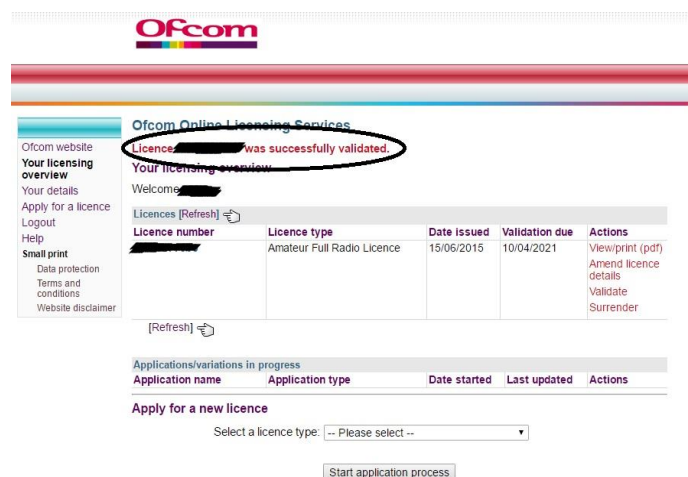 Terms and conditions
  Website disclaimer

Validate licence
Please check the details listed on your licence to see if they are still correct:
View licence (pdf)

My licence details are correct

I need to amend my licence details

Step 4 – Confirm your details are correct or amend them. Once you have the right details entered, press the appropriate button.

Ofcom

Ofcom Online Licensing Services

Ofcom website
Your licensing overview
Your details
Apply for a licence
Logout
Help
Small print
  Data protection
  Terms and conditions
  Website disclaimer

Licence was successfully validated.
Your licensing overview
Welcome

Licences [Refresh]

Licence number	Licence type	Date issued	Validation due	Actions
	Amateur Full Radio Licence	15/06/2015	10/04/2021	View/print (pdf) Amend licence details Validate Surrender

[Refresh]

Applications/variations in progress

Application name	Application type	Date started	Last updated	Actions

Apply for a new licence
Select a licence type: -- Please select --

Start application process

Step 5 – Check that the licence has successfully validated.

Step 6 – Put the kettle on, have a drink and mark the calendar to remind you for next year.

Ian M0HTA

Article	**Flexible Antenna/Rig switch**
Date	15th April 2016
Author	Bob Cowdery – G3UKB @ QRZ.com

Table of Contents

1 Introduction

My main interest has always been construction so I don't really have a static station; rigs, modes and antennas chop and change and my listening/operating location is often not where the equipment is. I decided several months ago that I needed a means to remotely mix and match antennas and rigs. There was nothing I could find commercially that would do many-to-many switching so I set about building something that would do the job.

2 Requirements

I wanted effectively to switch a 6x6 matrix, that is 6 antennas to 6 rigs in any combination and it had to be controlled over the local area network. I didn't need it to be weatherproof in the first instance as it would be located in the shack.

3 Design

Little design was required on the hardware side but initially a few stakes were put in the ground.

- A patch board seemed to be the best form factor. Six antenna ports, six rig ports with the ability to patch any to any.

- Clearly I couldn't have a fixed set of relays between the ports as that would only allow for one switching scheme so it seemed that the relays themselves needed be part of the patching system.

- For the controller the choice was Arduino [1] or a Raspberry Pi [2]. For embedded systems like this I tend to prefer the Arduino with an Ethernet shield to provide the network access.

- I wanted this to work up to UHF so I would need decent coax relays. The cost of these made my mouse hover over 'buy now' for quite a while! I eventually bought Tohtsu CX-120P PCB mounting relays from Henry Radio [3].

4 Hardware

The build was really quite straight forward although rather repetitive as I had to do 6 of everything.

The finished system is fully operational and fun to use but could probably only be classed as prototype (plus a bit) stage. I'm happy with the electronics and the software (although software as always will undergo bug fixes and enhancements as time goes on) but the mechanical arrangement is a little cumbersome so that will get redesigned at some point.

4.1 Patch Board

First to get built was the patch board itself.
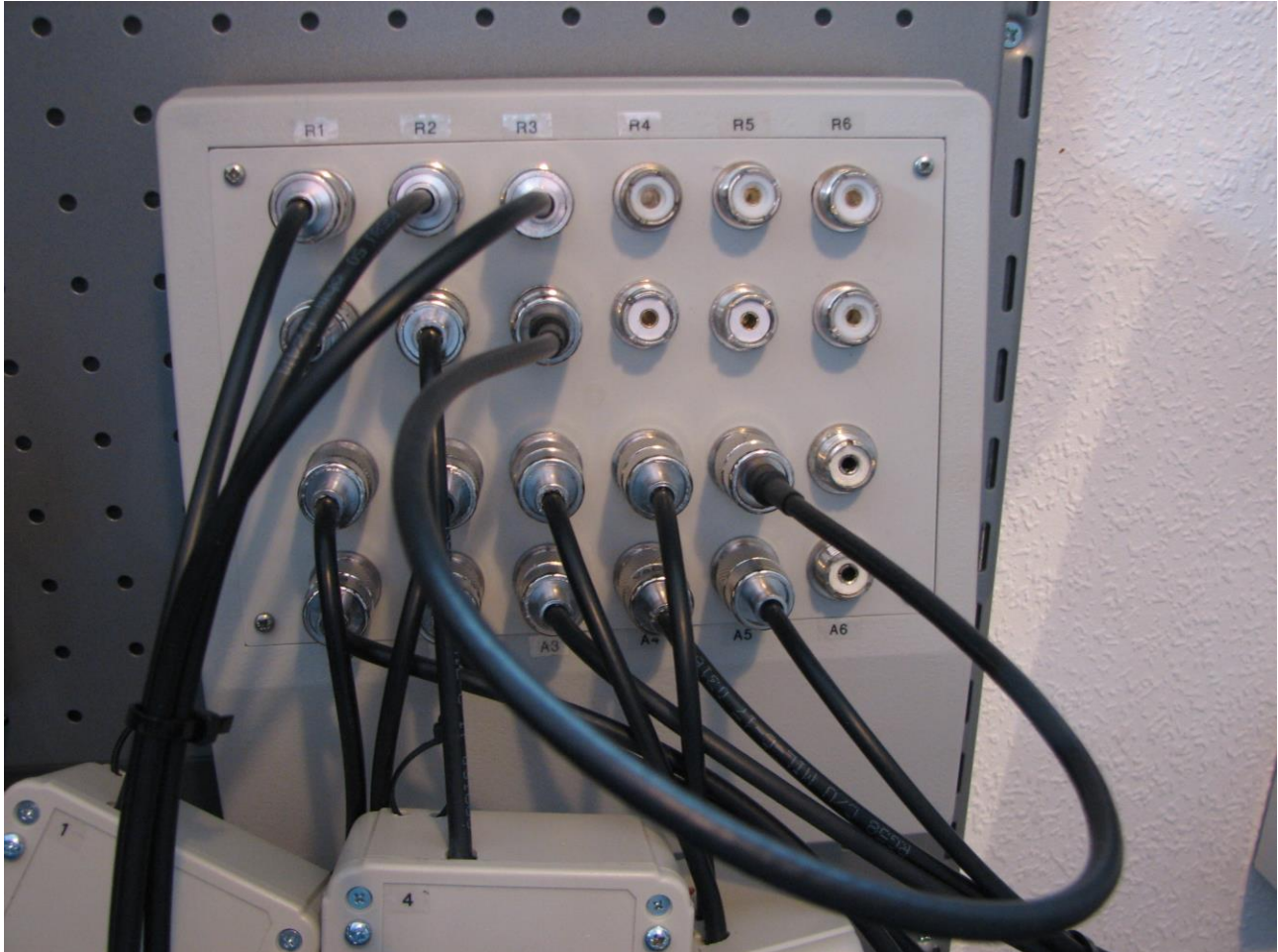
This is a pretty simple arrangement with the antenna ports at the bottom and the radio ports at the top. These are simply wired to their corresponding patch sockets with short pieces of RG58. The enclosure is an ABS console type form factor box. I didn't at this point want to common up the earth side, hence ABS.

4.1   Control Unit

The control unit provides the interface to switch the coax relays.
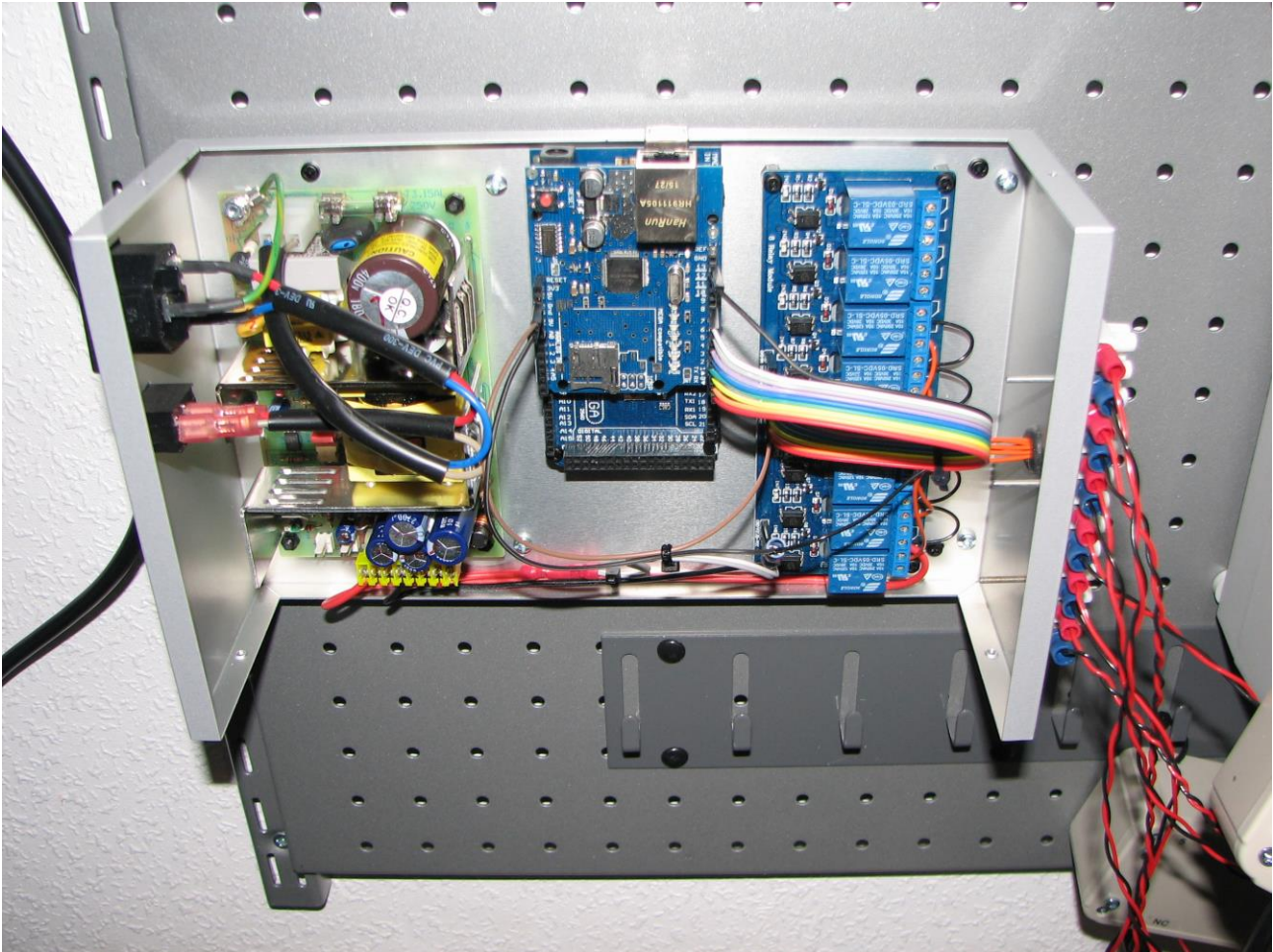
The enclosure is a simple aluminium box which provides reasonable screening.
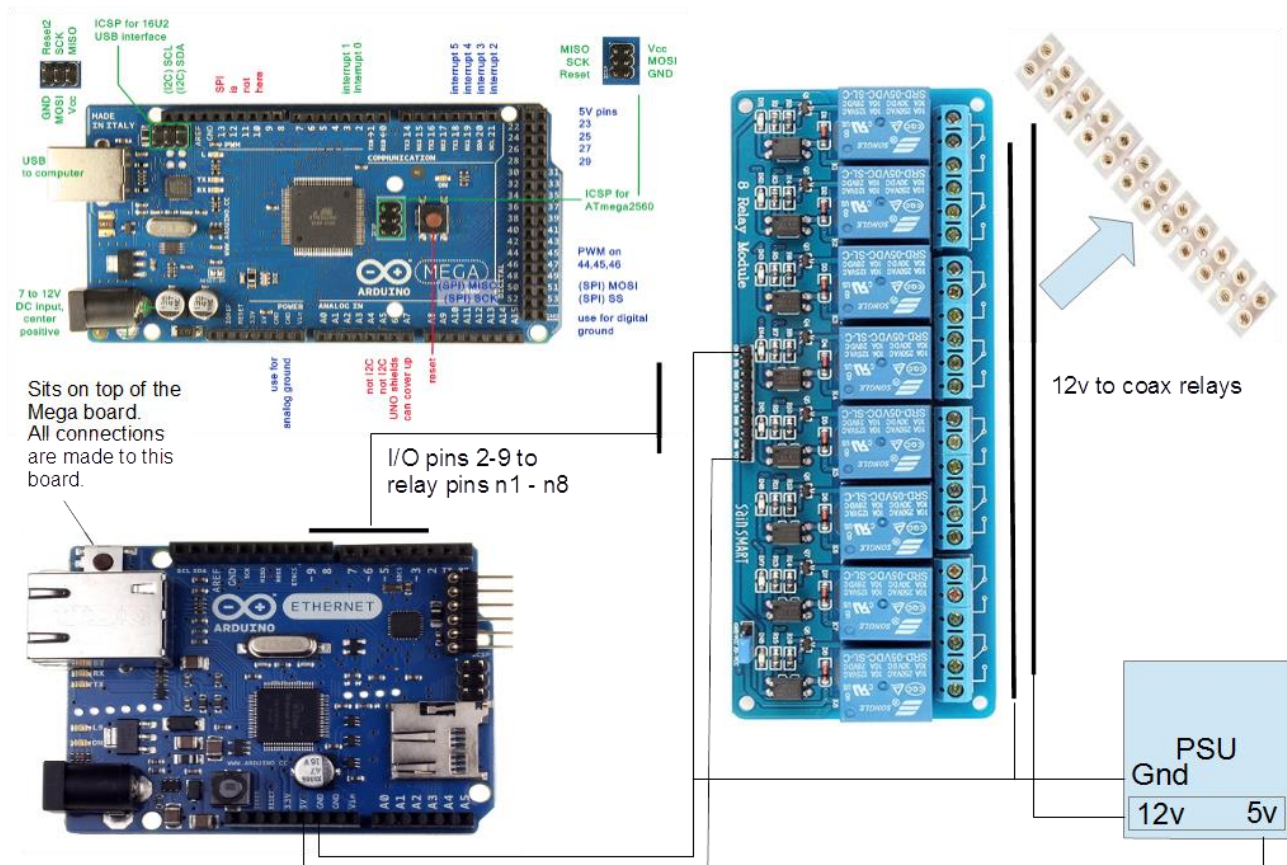
In the centre can be seen the Arduino Mega with the Ethernet shield piggyback on top. There are two sockets, one for the Ethernet cable and one for a USB connection which provides the means to program the unit.

To the left is a 5v/12v power supply unit. I bought several of these off eBay at a very reasonable cost and they seem to work well. The 5v drives the electronics and 12v is required for the coax relays.

To the right is an 8 relay module. The purpose of this is to switch the coax relays. I could have used relay drivers here rather than actual relays. However, these 8 relay boards are available from multiple suppliers on eBay, and are ridiculously cheap appearing to be far below the cost of the actual components!

Each relay switches 12v to the connector block on the outside of the case to which the coax relays are connected.

The connection diagram is very straight forward. Board connections are made using pre-formed PCB pin connectors which come in various lengths and with male or female terminations. Again these are available from multiple suppliers on eBay.

Sits on top of the Mega board. All connections are made to this board.

I/O pins 2-9 to relay pins n1 - n8

12v to coax relays

PSU Gnd
12v   5v

4.2   Coax Relays

I decided to house each relay in a separate small box with flying leads such that I could interconnect the ports in any desired way.
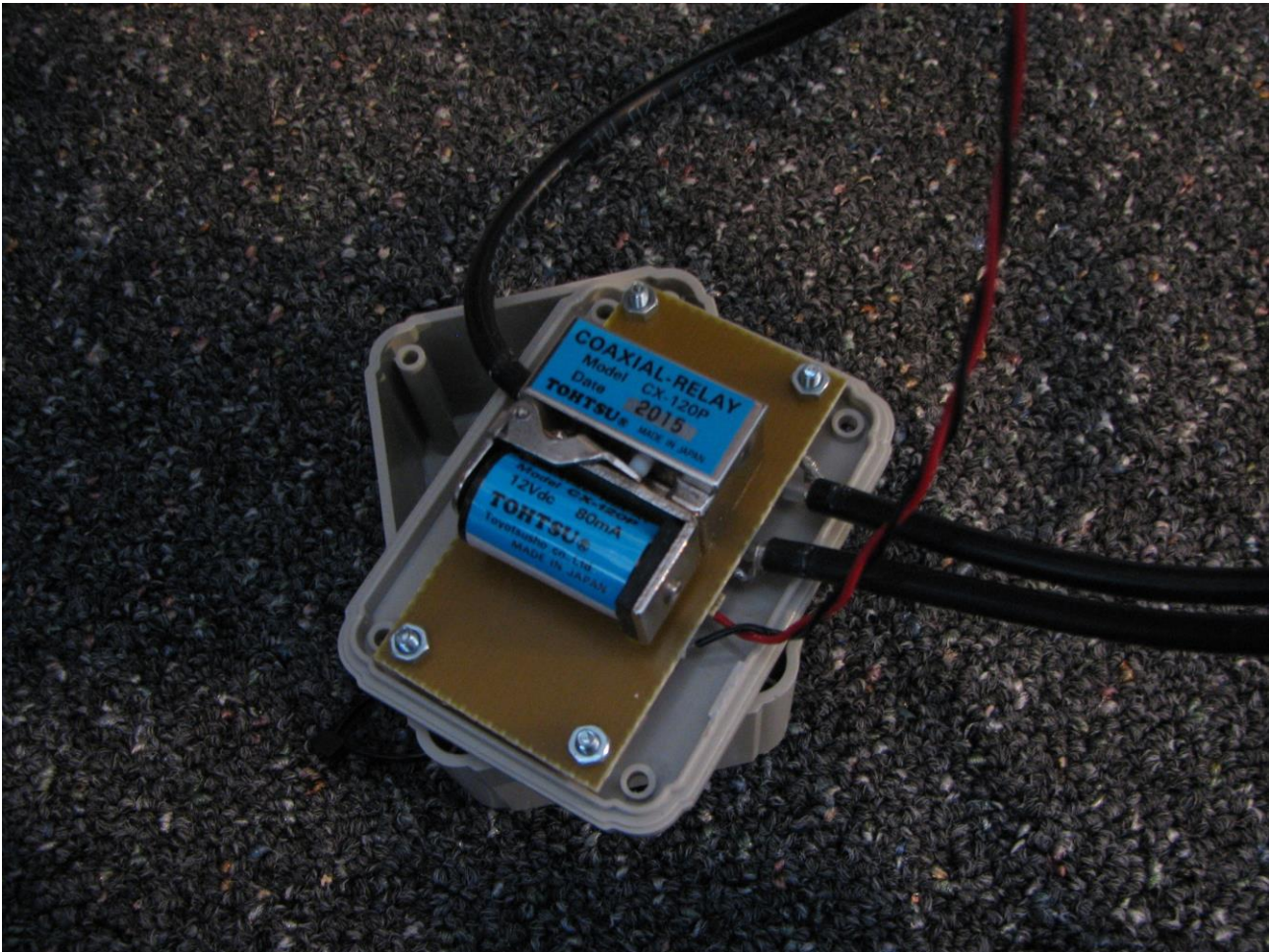
Each relay is mounted on a small piece of PCB using the island technique for direct connection to flying leads. The outside of the case is marked with the relay number and the normally closed connection. The relay number has no electrical significance but is useful for tying up with the patching diagram.

4.3 In situ

It looks a bit unwieldy but isn't too bad to work with. Everything is mounted on a steel perforated back panel which is intended to hold various tools [4]. There is one accessory, the hooks at the bottom are useful for holding relay enclosures which are connected between other relays. The whole unit hangs on the wall.
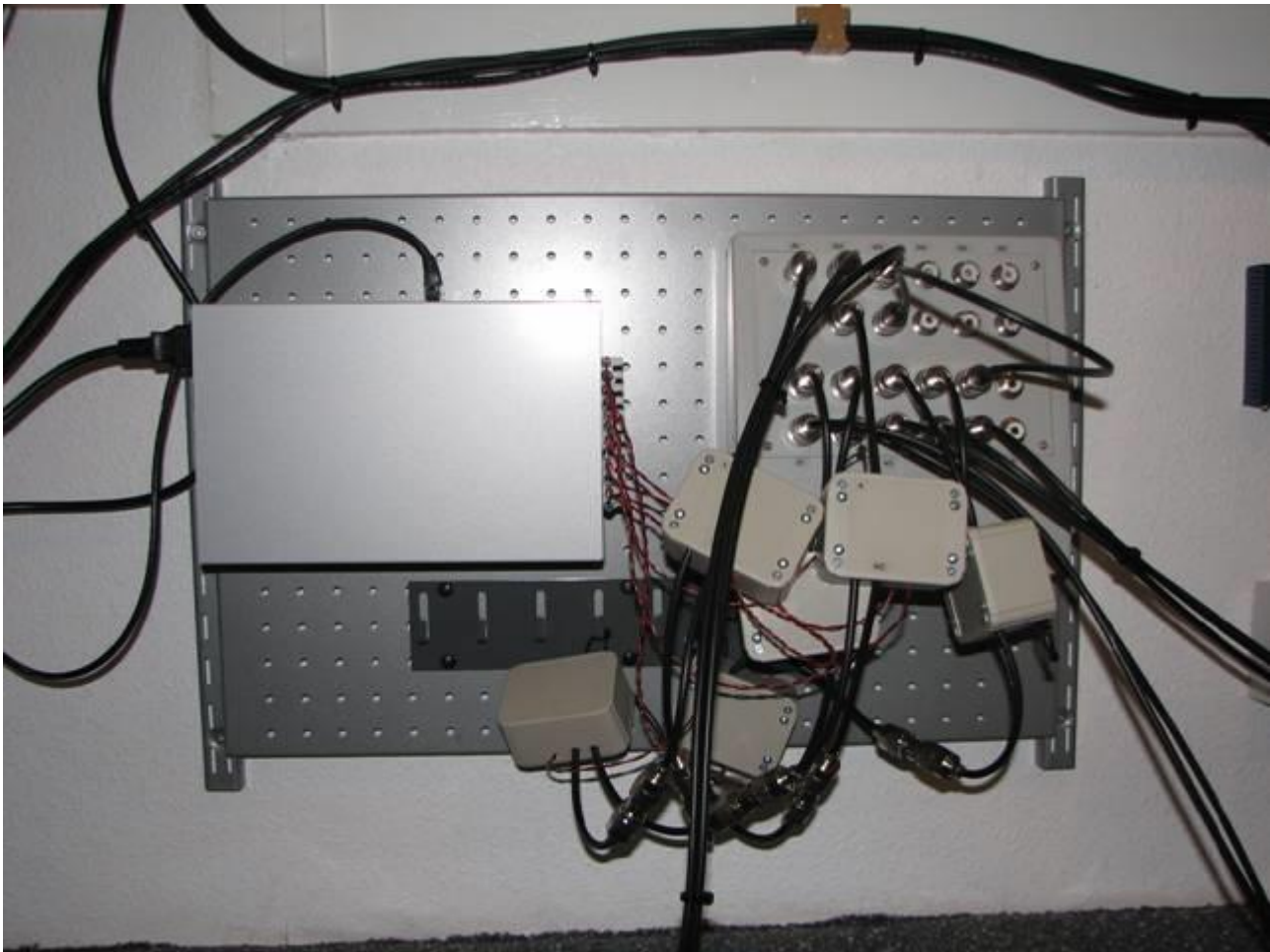
5 Software

The software is split into 2 parts. The firmware that runs on the Arduino and the control program that runs on a PC.

5.1   Arduino Firmware

The Arduino is programmed in 'C' using the Arduino IDE (Integrated Development Environment) [5]. The IDE connects to the hardware via a USB port and works on Windows, Linux and OS/X. Note that the Arduino takes its power from the USB port when programming and therefore it's a really bad idea to have the mains power supply on at the same time so I always pull the mains plug out to save any accidental firework display!

The firmware has one main job which is to energise/de-energise the coax relays which it does by energising/de-energising its relays on the attached relay board. The relay board is interfaced directly to the Arduino digital I/O pins. There are of course a few other things it needs to do like manage the network connection and provide status reports.

Commands to the controller are simple strings using the UDP protocol.

```
sketch_udp_antsw | Arduino 1.6.4

File  Edit  Sketch  Tools  Help

  sketch_udp_antsw

28  // Buffers for receiving and sending data
29  char packetBuffer[UDP_TX_PACKET_MAX_SIZE]; // Buffer to hold incoming packe
30  char  ReplyBuffer[128];                    // The response
31  char  StatusBuffer[128];                   // Interim data
32
33  // An EthernetUDP instance to let us send and receive packets over UDP
34  EthernetUDP Udp;
35
36  //////////////////////////////////////////////////////////////////////
37  // Relay section
38  // Pin allocation
39  const int relay_base = 1;
40  const int relay_1 = 2;
41  const int relay_2 = 3;
42  const int relay_3 = 4;
43  const int relay_4 = 5;
44  const int relay_5 = 6;
45  const int relay_6 = 7;
46  const int relay_7 = 8;
47  const int relay_8 = 9;
48
49  //////////////////////////////////////////////////////////////////////

1                          Arduino Mega or Mega 2560, ATmega2560 (Mega 2560) on COM5
```
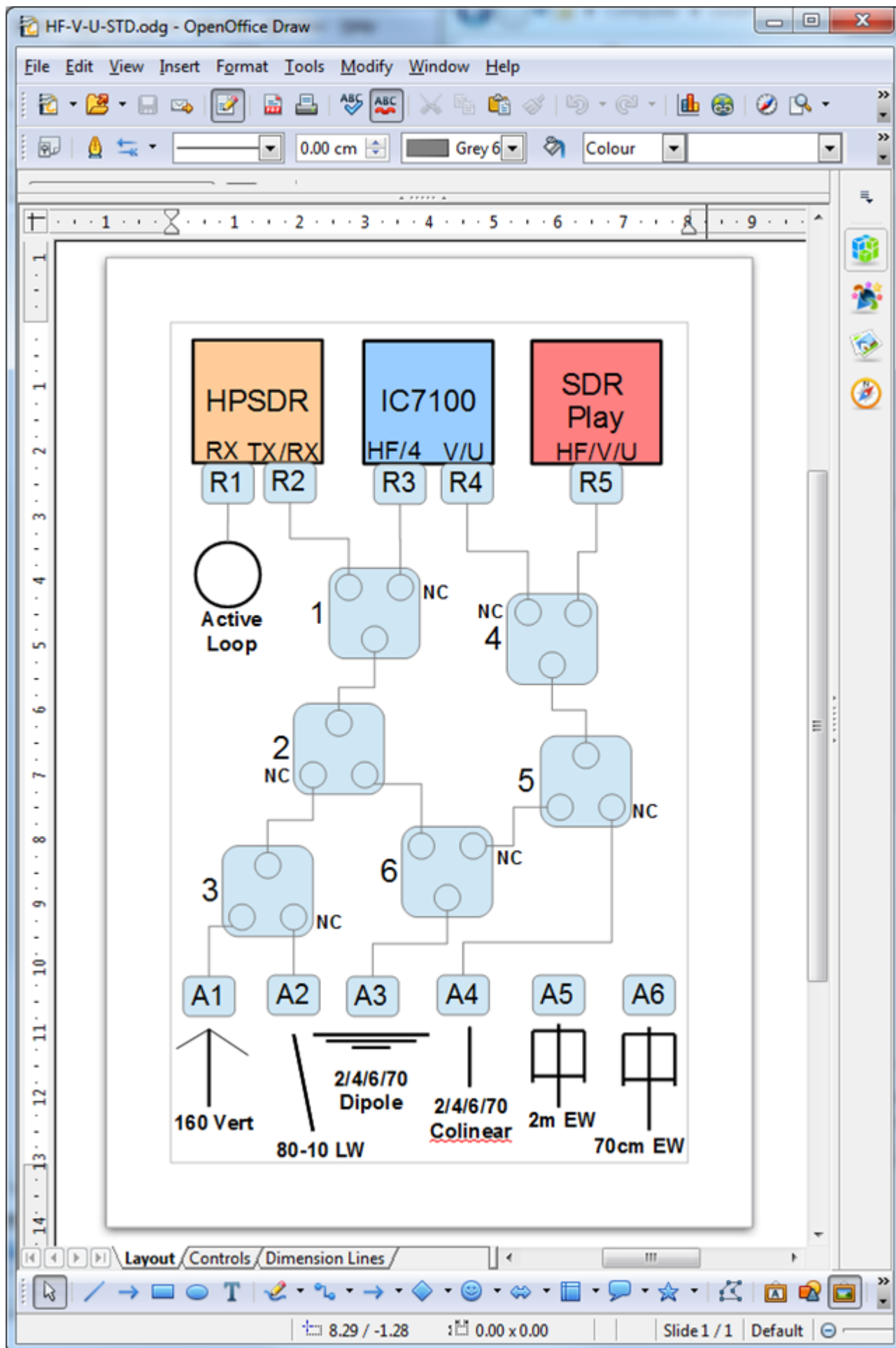
5.2   PC Software

The PC software is written in Python (currently version 3.3.3) using the QT4 libraries [6] for the GUI. It is cross platform and I run it on both Windows 7 and Linux Mint 16. As software goes, it's not that complex and hopefully reasonably well structured and commented. The software and firmware are available on github [7]. Any editor can be used to view Python code but to edit it's better to use a Python aware editor. I use the free Komodo Edit but there are many other options.

The main decisions I made for the software were how to represent and switch the relays and support multiple connection schemes. After considering building in a graphics editor of some sort I realised that would be a step too far when there are so many drawing programs available that I could never hope to emulate. The answer was simple, draw whatever I wanted in any drawing program (I'm using Open Office Draw), export it as a .png and then load it into the program and configure the relay contact points. In this way I could easily modify the drawings and switch between different drawings for different switching schemes. Of course the patch board has to be reconfigured for each arrangement but that's pretty quick to do.
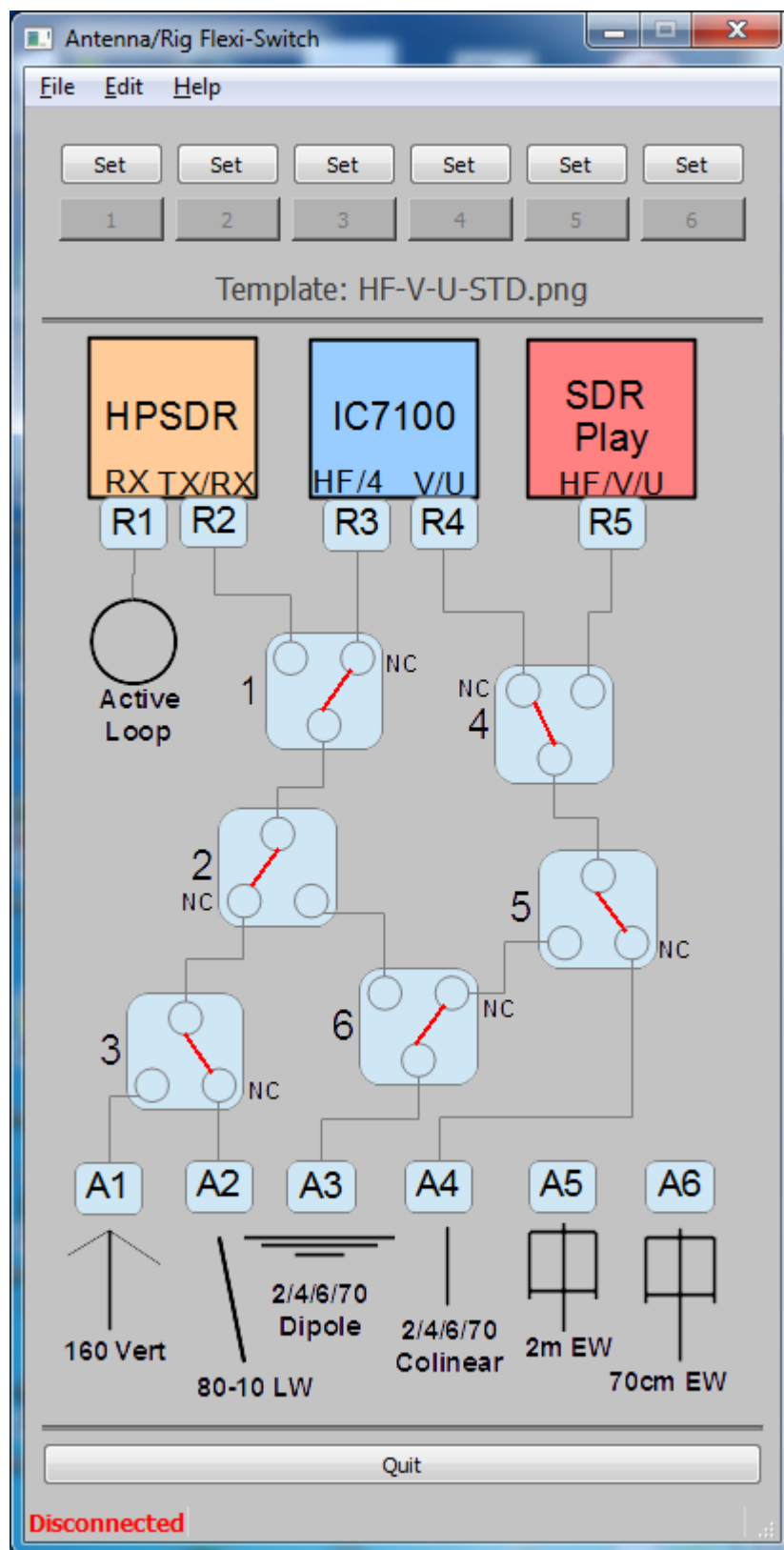
The software can be run without the hardware and will simply report it as disconnected, but still allow all configuration to be done.

Below is one connection scheme loaded into OpenOffice Draw. Note that the relay switch lines are not drawn. Each relay is numbered and the NC connections marked.

To make reconfiguration easier I have kept the antenna and rig connections the same for each scheme so only the relay connections need to be changed.

File Edit View Insert Format Tools Modify Window Help

0.00 cm   Grey 6   Colour

HPSDR
RX TX/RX
R1 R2

IC7100
HF/4   V/U
R3 R4

SDR
Play
HF/V/U
R5

Active
Loop

1 NC

4 NC

2 NC

5 NC

3 NC

6 NC

A1 A2 A3 A4 A5 A6

160 Vert

80-10 LW

2/4/6/70
Dipole

2/4/6/70
Colinear

2m EW

70cm EW

Layout / Controls / Dimension Lines

8.29 / -1.28   0.00 x 0.00   Slide 1 / 1   Default

The same graphic after configuration in the application is shown below.

The switch lines are now shown. The relay state can be toggled by clicking on the relay. Switch configurations can be remembered by clicking a 'Set' button and entering a description. The configuration can then be recalled by clicking the associated numbered button. Hovering over the button will display the description.

Configuration is simply a matter of adding a template (which must exist in the \templates directory) and then setting the rectangle containing the relay by clicking top left and bottom right – the relay

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boundary will be outlined on mouse hover over and this also delimits the 'hot' area for the switch. Finally click on the 3 switch points. Do this for all relays and configuration is complete.
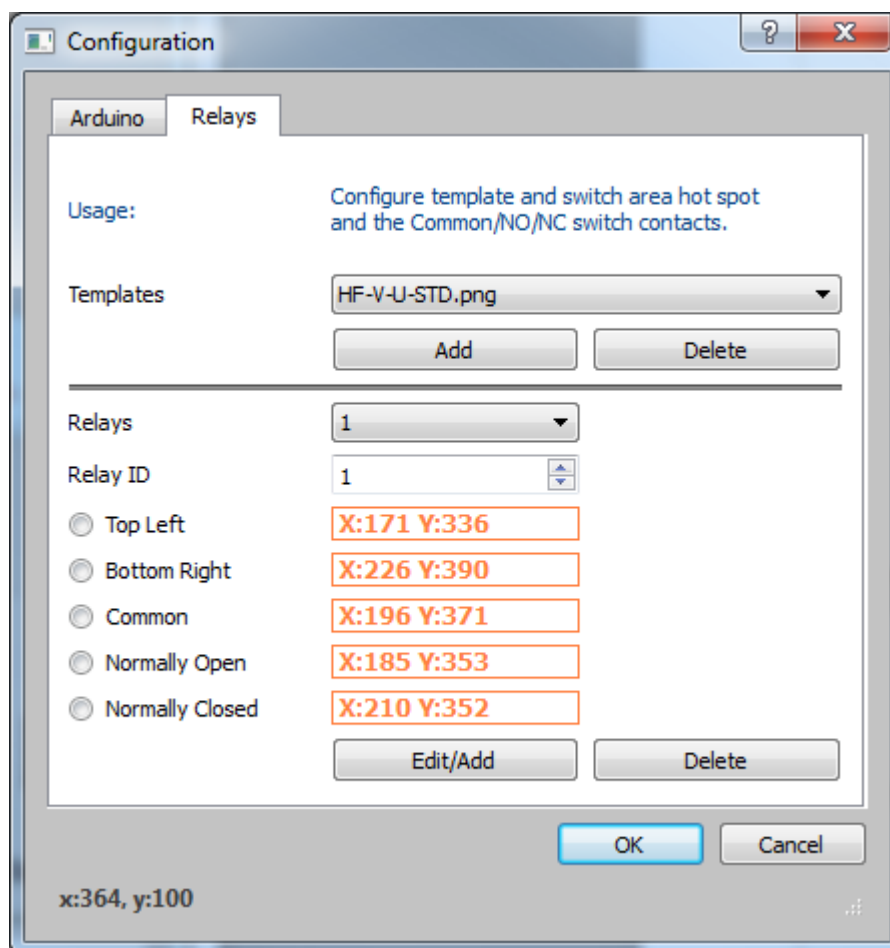
6 Wish List

A Mk2 will be on the stocks at some point and from the experience now gained the following improvements would be beneficial.

1. More ports – I've already run out of the antenna connections.

2. More relays – the current 6 relays seems to be the minimum to do anything useful. I would probably plan 8-10 in future.

3. More real estate – its a bit cramped so I would space out the connectors on a larger panel.

4. Better ergonomics – whilst separate boxed relays seemed the best approach it needs a bit of a rethink to make for easier use.

5. Be a bit more scientific – what is the isolation, what are the losses when several relays are chained together. Is it good RF design?

6. Interlocks – prevent TX when no antenna is connected.

7. Allow for SWR measurement device to be added in-line and possibly dummy loads.

8. Port the software to Android.

7 References

1	Arduino is an open hardware and software platform. The official hardware is a little better built but clones are fully functional and considerably less expensive. I used a Mega clone in this project because I had one spare although the less expensive Uno would probably do. These are available from multiple sources such as RS or eBay. They support multiple I/O ports as standard and are well suited to embedded projects. Execution automatically starts when power is applied.
2	The Raspberry Pi has gone through several build iterations each time improving performance and I/O. Being a fairly capable complete computer rather than a micro-controller it is suited to more sophisticated projects but would be equally fine for this project. Several I/O boards are available. The software in this case (rather than firmware) could also be written in Python. Programming would require some upload mechanism or a monitor and keyboard to be attached. Some knowledge of Linux would be required to provide auto-start etc.
3	http://www.henryradio.com/tohtsu.html#cx120p
4	The perforated back is available from B&Q and has several accessories that push mount into the perforations which are designed to hold tools, however the hooks were useful for this project. It mounts on standard slotted supports normally used for shelving.
5	https://www.arduino.cc/en/Main/Software
6	https://www.riverbankcomputing.com/software/pyqt/download At the time the software was written QT5 had issues with Python 3.x so the current software uses QT4. The downloads are usually built against a recent version of Python 3 so a later version of Python may be required. Any version later than 3.3.3 should be compatible.
7	The software is hosted at https://github.com/G3UKB/antenna-switch. The source can be browsed on line, downloaded or checked-out using an SVN client such as TortoiseSVN. To run the application Python 3.x and QT4 with the PyQt Python bindings are required. To start the application change directory to the \python directory and type - > python antswui.py If using Linux the default Python installation is probably 2.x which will fail on the 3.x application so you may need to type - $ python3 antswui.py Note that the IP address and port are hard coded into the Arduino code as 192.168.1.177 and port 8888. These can easily be changed if required.

Bob G3UKB

CDARC

The jewel in the crown and what sets CDARC apart from a number of other radio clubs and societies is the fully equipped shack for members to use.

The operators in the picture are:

Nearest –   Chris   M0WEF

Middle –   David   G0LRD

Far -   David   G6KWA

Behind David -   Bob   G0GVZ

The shack is equipped with the following:

External

Approximately 120 foot doublet fed with 300 ohm ribbon feeder for Shortwave bands from 1.8 MHz through to 50 MHz

2 Element Moxon for 50 MHz, low loss feeder and rotator

9 element Tonna for 144 MHz with low loss feeder

19 element Tonna for 432 MHz with low loss feeder.

The above 2 aerials share the same Yaesu 450 rotator.

The feeder cable and connectors was from Martin Lynch & Sons with Messi & Paoloni ULTRAFLEX 10 cable being used and it is highly recommended.

Equipment

Kenwood TS-790 for 2m and 70cm

Nag linear for 2m

Audio distribution system for headphones and extra speakers.

Power meter

Dell Logging computer running:

Minos for vhf contests
http://minos.sourceforge.net/

Easilog 6 for short wave general logging, by G0MDO http://easilog.co.uk/index.html (an excellent program underrated)

MFJ balanced line tuner

Yaesu FT 950 for all shortwave bands through to 50 MHz

2m 1 KW linear (still needs a logic expert to fix the Lurking behind Bob Grimes and the notice board is the protection and delay circuits after an unfortunate incident where it was operated repeatedly for 20 mins into an open circuit feeder a while back, although well protected it could only stand this level of abuse for a while, as well as further work in the power supply section).

Out of shot is also a range of test gear, library, construction bench with SMD microscope and tools.

To find out more CLICK HERE.

We operate from the club shack on the 1st and 2nd Tuesdays of each month from 7:30 - 9:30pm (unless the college is closed for holidays).
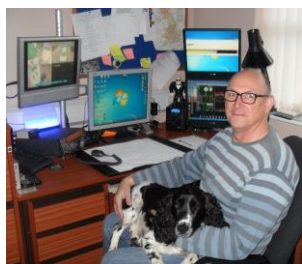
David G6KWA

Pen portrait of Ian Cooke M0HTA Publicity Officer.

I have been a member of CDARC for two years and was elected onto the committee in January this year after being a co-opted committee member the previous year.

I'm new to the hobby of amateur radio although some 30 years ago I was mad keen on CB radio (I even formed my own club in my home town of Runcorn).

I worked at ICI for 25 years in various roles, the last job before I left was on the Per/Tri plans as a shift plant controller. Hitting the mid life crisis, I left ICI for the Cabinet Office as an Skill Zone 4 electrical technician specialising in the installation and maintenance of high security systems. This was an interesting & varied job taking me overseas on a number of occasions. I came off the tools after 5 years and ended up working my way through the ranks to join security consultancy.

After a few years of this, an opportunity was on the horizon, so I moved over to the MoD, still involved in security but a different aspect of the discipline. 4 years later I left security for project delivery and a quiet life!

Moved the family, Lin and three daughters (Lucy, Amy & Cherry) lock stock and barrel to Chatteris in 2006 due to work and we love the town and area. I run a weather station and it was through this I met Andy (G6OHM) who got me interested in amateur radio.

I took my Foundation exam in April 2014 with Peterborough DARC as I wanted to progress as quickly as I could. CDARC assessed my practical and in June I passed my Intermediate. On the 8th December 14 I took and passed my Advanced Licence where Colin G8TMV invigilated.
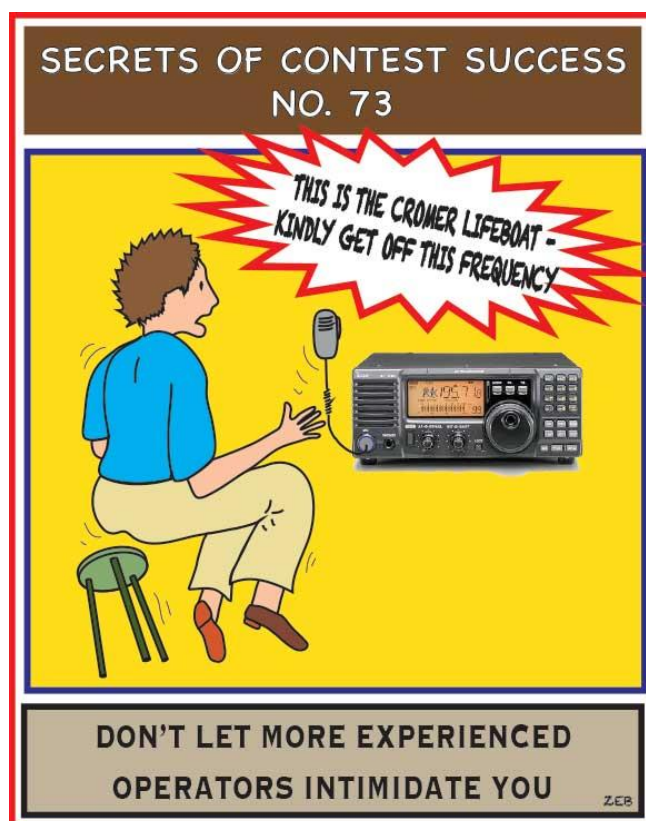
My shack is in the upstairs rear bedroom, my antennas are a 30m inverted 'L' longwire with

auto tuner. For 2m & 70cms I use a mast mounted x200 co-linear.

I like the idea of a 'shack in a box' so my first transceiver was a Kenwood TS-2000 followed about a year later by an Icom 7100 as the 4m band is getting quite active and I fancied the idea of D Star.

There is a saying that 'women have friends and men have hobbies' this is so true. I do like the technical aspects of radio rather than the operation, although I do use PSK a fair bit. My idea is that this is a developing hobby and I have plenty of time to play when I eventually retire.

One thing I have learned is that I wish I'd bought a house in the middle of nowhere, that I didn't own a plasma TV due to the interference it generates and it seems hams have a different opinion on pretty much everything ☺.

SECRETS OF CONTEST SUCCESS NO. 73

THIS IS THE CROMER LIFEBOAT - KINDLY GET OFF THIS FREQUENCY

DON'T LET MORE EXPERIENCED OPERATORS INTIMIDATE YOU

Foundation, Intermediate and Advanced Licence Training.

My first encounter with CDARC training was in the late 1990's. Our elder son, Leo, (M5AKW and now JG1TTG) was interested in doing something to counteract school work. I used to travel into London with a then member of CDARC (David Wager) who suggested amateur radio. We duly enrolled with John Bonner, attended tutorials at his house, took the City and Guilds examinations at CRC and the rest, as they say, is history.

The examination system then changed radically with the introduction of the current three-tier system of Foundation, Intermediate and Advanced licences.
A strange, (and I guess unintended), consequence of the licence change was the number of G8 and G6 licensees who took an M3 Foundation exam to get access to the HF bands. The removal of the Morse requirement and the re-alignment of existing licences shortly afterwards quickly removed this anomaly.

I became involved with the delivery of the new courses towards the end of 2007 as I recall. The team at that time comprised: John (G0GKP); Mike (G8VCN); David (G8JKV); Mike (M0BLP); Dave (G6KWA); John (M0VCM). The plan was to hold two Foundation courses each year in the spring and the autumn. We would offer an Intermediate course in the early summer. The Advanced course would be by self-study with tutorial help available on-demand. In this way a competent candidate could progress through the three stages in under a year. This is still the philosophy we follow.

We run a complete Foundation course over a weekend at Foxton Village Hall. It's an ideal venue from all aspects of running a course. Although we go at a brisk pace we have designed the course for the complete beginner. It is very rare for someone not to be successful first time. We give the candidates an indicative mark after their exam on the

Sunday. The RSGB, who administer the exams and licensing, then confirm and formalise the issue of the M6 licence via Ofcom.

The Intermediate course also involves a construction element. Again we run this course at Foxton over a series of Saturday-morning tutorials – one of which is dedicated to the "build project". The project is a VFO kit supplied by our chief invigilator Colin (G8TMV). Having everyone do the same project ensures that every candidate gets a working result. A subsequent part of the practical assessment is then to calibrate the VFO as well. (Incidentally if you have not seen the VFO do get one from Colin, build it and calibrate it. It's a very elegant little project.)

By the time candidates are ready for their Advanced licence they should be sufficiently competent to self-study. We provide ad-hoc tutorial help. The exam takes place on a prescribed day each month. We collaborate with our colleagues in the Cambridge University Wireless Society and between us we can usually offer a venue for exams that is convenient to all.

CDARC Foundation courses are very popular and we always have sufficient numbers for our two courses each year. Candidates come from as far as London as well as locally within East Anglia. (The furthest ever was from the South of France!)
For the future we are planning a series of videos to complement the training material already on the website. These will help familiarise Foundation candidates with the practical tasks in advance of the course. The intention is to make the hands-on sessions easier to understand and thus improve the efficiency and time management of the course.

Members of the club are very welcome to drop in during one of the weekend sessions and see a course first-hand. If you would like to become involved with training new radio amateurs then please come and talk with me or Colin – your help will be appreciated.

Peter M0DCV

Who needs Amateur Radio?

by Ivor Knackstagrynd G4GA

oday, when almost every shack contains a Tpersonal computer, it is difficult to believe that ham radio was a popular hobby for nearly one hundred years before computers came on the scene. Indeed, there are still hams who don't appreciate that, by the simple step of adding a PC to the shack, they can introduce themselves to a whole new pastime. A large number of those who have taken the plunge find this aspect of the hobby so absorbing that they scarcely find time for traditional wireless any longer. Of course, this level of involvement cannot be achieved without careful thought being applied to the selection of computer components and software and this article is designed to help you make the right choices to get the most leisure-time enjoyment from your computer.

On a typical visit to a high street computer store you'll find yourself listening to a salesman extolling the virtues of the products he has available. Typical blandishments include the keywords 'simplicity', 'reliability' and 'value-for-money'. Beware, these are not for you! Does a car enthusiast go out and buy a brand-new Japanese compact? No, he buys an old banger so that he can spend his weekends enjoying taking it apart in grease up to his elbows. Sheer bliss! Forget about John Lewis and PC World and, instead, have a look on eBay or get down to your nearest second-hand emporium if you have one. Even here, you'll sometimes be tempted by the occasional ancient Apple Mac but don't fall for it. If you do, you'll take it home, switch it on and never have to give it another moment's thought. Boring.

If you're buying from eBay, look for the all-important 'sold for spares only' tag. These are the ones you want and are fiercely fought over by radio hams. Even better, pay a visit to your local pawn shop. They'll not only provide a machine that someone has traded in because of its unreliability but charge you more than it cost new. On the subject of reliability, try not to buy machines which have been put together by a single manufacturer. These tend to be made up of components which have been selected to work well together and there will be little scope for weekend work here. Home-built jobs fit the bill nicely. Every board should have been supplied by a different oriental copyist and if you can lay your hands on a home-made machine which has never worked, before another ham snaps it up, so much the better. A multi-layer mother board with an intermittent through connection will provide unending entertainment for as long as you want. Many first-timers make the mistake of switching the computer on to see if it works before purchase. Don't commit that schoolboy howler but do open it up to make sure it has the requisite number of fans. These should be liberally distributed around the case and expansion cards and if the blades are well coated with dust and fluff this is a reassuring sign that they probably

worked, once. Graphics cards must have at least two fans of their own and if the graphics chip doesn't have a heatsink at least twice as large as that on the processor let it go, there's very little scope for problems there. This business of fans cannot be over-emphasised, the amateur press is strewn with tales of hams who failed to consider this aspect when selecting their machines and subsequently found the near-silence which followed boot-up so unbearable they were obliged to turn on the radio.

Once you've got your hardware, it's time to select your software. Otherwise sound authorities will decry this side of things as unimportant. After all, they claim, if you've followed the tips given here in selecting the hardware, it's unlikely you'll ever get the software running anyway. That is missing the point entirely as there are hours of pleasure to be had in conversation with other hams on the merits of different applications even if you've never had any hands-on experience yourself. How many conversations have you heard beginning "I tried a copy of …", not "I successfully ran a copy of …" – I think you get the point.

The operating system is a no-brainer. Mac OSX is out as it can only run on Apple hardware which unfortunately suffers from the reliability already mentioned. Linux is just as good as all the others but it's free so no kudos to be gained there. Windows is ideal, it's expensive and offers hours of twiddling to iron out problems and the best part is, the more you twiddle the quirkier you can make it. Do make sure you go for the latest edition as earlier versions tend to have had many of the best bugs removed – MS are believed to do this deliberately to encourage users to upgrade. If you ever get it running you can customise it extensively until it doesn't but don't emulate the smart-alecs who short-circuit the whole entertainment package by replacing the start-up screen with the BSOD. That's like tearing pages out of a book so you can get through it more quickly.

So, that's all there is to it. Think long and hard about what you want from a computer, avoid reviews at all costs – there's a lot of evidence that reviewers are biased towards the more reliable machines - and enjoy those long winter evenings in the shack swapping out ram modules fruitlessly. You'll never feel the need, or have the time, to call CQ again.

David M0ZEB

T TECHNICAL GLOSSARY

486: The average IQ needed to understand a PC.

State-of-the-art: Any computer you can't afford.

Obsolete: Any computer you own.

Microsecond: The time it takes for your state-of-the-art computer to become obsolete.

G3: Apple's new Macs that make you say 'Gee, three times faster than the computer I bought for the same price a Microsecond ago.'

Syntax Error: Walking into a computer store and saying, "Hi, I want to buy a computer and money is no object."

Hard Drive: The sales technique employed by computer salesmen, esp. after a Syntax Error.

GUI: What your computer becomes after spilling your coffee on it. (pronounced 'gooey')

Keyboard: The standard way to generate computer errors.

Mouse: An advanced input device to make computer errors easier to generate.

Floppy: The state of your wallet after purchasing a computer.

Portable Computer: A device invented to force businessmen to work at home, on vacation, and on business trips.

Disk Crash: A typical computer response to any critical deadline.

Power User: Anyone who can format a disk from DOS.

System Update: A quick method of trashing ALL of your software.

Article	**Exploring JT65 on HF**
Date	16th April 2016
Author	Bob Cowdery – G3UKB @ QRZ.com

Table of Contents

1 Introduction

Having come back to the hobby after many years of very sporadic activity I wanted to explore as many aspects as possible. I thought it would be beneficial to me and possibly to others to document getting going on JT65. Whilst this is pretty much the same as getting going on any digital mode there are some specifics.

I don't intend explaining much about JT65 itself (strictly speaking it's JT65A for HF) or its up and coming sibling JT9 as there is copious documentation on the web. The RSGB book [1] is also a good primer.

Disclaimer – I'm no digital modes expert, in fact, very much a beginner so this is my experience which may not be the best, and certainly not the only way to get onto the JT modes.

This has been written literally during the process of connecting up and making a first contact. The whole process has taken about 4 hours (plus a bit of final editing).

2 Radio and Ancillary Equipment

I have an HPSDR rig recently finished but I'm still working on the software so in the first instance my IC-7100 is the target rig. I wanted to use this from the house where I could more easily monitor the JT65 frequencies.

My antennas all terminate in the shack which is over the garage, which is also where the 7100 base unit lives. I've already got RemoteRig connections set up between the house and garage so the 7100 head unit usually lives in the house next to the my main computer.

As the base unit has the data connector which is difficult to remote to I'm left with having to use the microphone and phones connectors on the head unit. Whilst this is not ideal it should work perfectly well. When using the 7100 locally I believe the inbuilt sound card can be used over the USB connection, but my remoting requirement precludes this although an Ethernet USB extender could be an option.

I could have used the computer's inbuilt sound card (which I did on an initial test for RX only) as

JT modes are not that fussy about the sound card quality, but I decided to buy a SignaLink USB with the RJ45 microphone connector for the following reasons.

- I didn't have to make a cable (poor excuse, as it's easily made).
- Provides level knobs to twiddle (slightly less poor excuse).
- Provides automatic PTT without having to jump through hoops to use CAT which is not fully supported by all JT65 programs (useful).
- Potentially a cleaner interface than a built-in sound card.

3 Software

There are two options for software, the original WSJT-X [2] or JT65-HF [3]. There are pros and cons to both these programs but I prefer JT65-HF. Apart from any sound card drivers etc the only other piece of software required is for time synchronisation. The JT modes require the transmitting and receiving stations to be in time synchronisation to better than two seconds and preferably better than 1 second. Most PC clocks are way short of this requirement.

I use the freely available program Dimension-4 which runs as a service and will find an available internet time server and adjust the local clock.
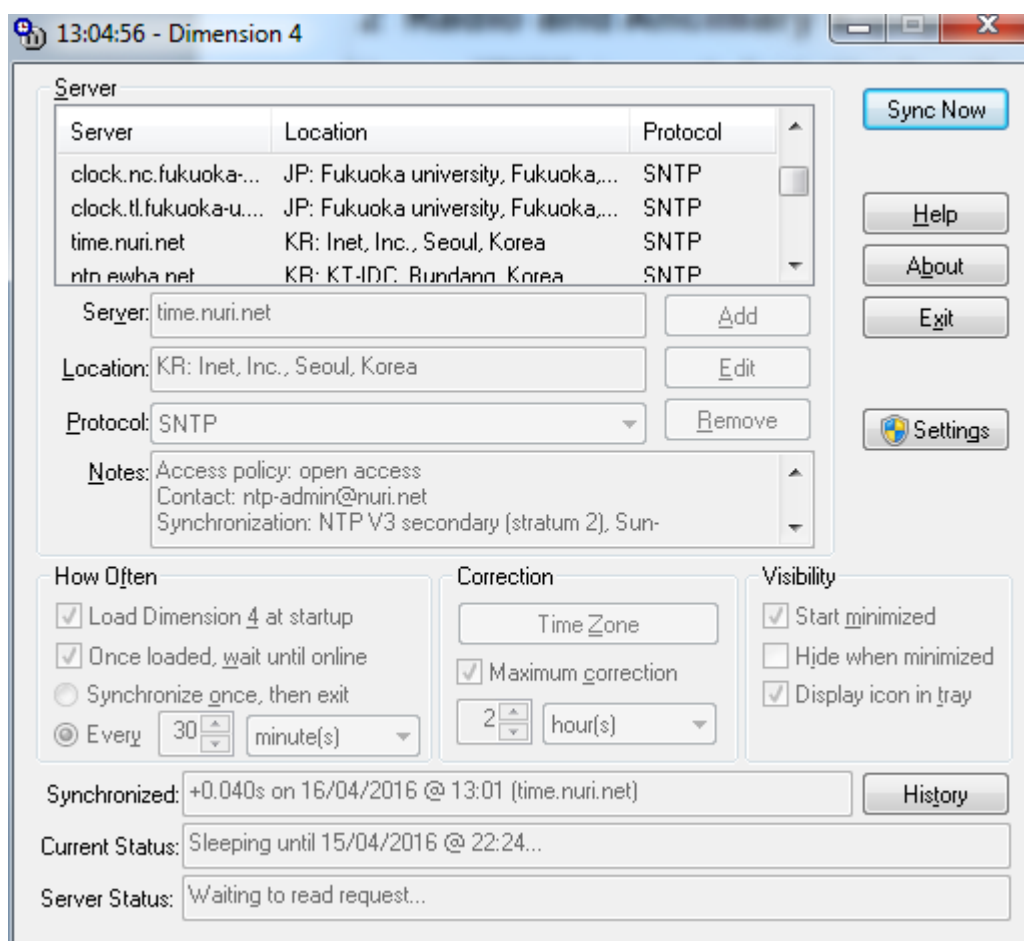
4 Configuring SignaLink

4.1 Setting the Links

The SignaLink USB device required to be set up for my 7100 as microphone connections vary

between rigs. The instructions for the links are given in
http://www.tigertronics.com/sl_wirebm.htm#ICOM. As the 7100 does not bring the receive audio out to the mic connector the audio link is omitted and a separate audio cable (supplied) must be used. Apart from this the only confusing link was one marked PWR, except it wasn't marked PWR on the silk screen and a note at the top of the page said it should not be fitted as it's not required for SignaLink USB.

4.2 Connecting to the Computer

The instruction are given in http://www.tigertronics.com/ for all Windows systems. There are no instructions for Linux so Linux drivers may not be available.

Essentially for most Windows systems simply plug in and Windows will locate and load drivers.

Plug in, apply power and... nothing appears to happen ... however, the instructions do warn you may not get the usual device messages. A quick look in the audio devices confirms there are two new devices called 'USB Audio Codec' which were probably already loaded but not used. They are marked as the default input and output devices so that's the first thing to correct.

9. In the output devices select the on-board output as default.
10. In the input devices I could only select devices that are plugged in as default. So I plugged in a microphone and selected it as default. This of course wasn't really necessary.

4.3 Connecting to the Radio

There are two connections to the 7100. An RJ45 connector from the SignaLink RADIO port to the 7100 Mic port and a mono audio cable from the SignaLink SPKR jack to the 7100 Headphone jack.

As the speaker is cut off by inserting the headphone jack, headphones may be connected to the Aux port on the SignaLink. Likewise the Mon port on the SignaLink can be used to monitor the TX audio output.

5 First Run

After connecting up and turning the SignaLink on, the radio was powered up. For my setup this means:

1. Running up a browser onto my IP9258 IP Power Switch and turning on the outlet which powers the IC-7100 base unit PSU and also the RemoteRig Radio side unit.
2. Powering on my local RemoteRig unit.
3. Powering on the 7100.

I then started JT65-HF and set the configuration as follows.

Station Setup – note the selection of the 'USBAudio CODEC' for input and output. Other mandatory requirements are callsign and locator.

RigControl/PTT – set to no control as the SignaLink presses PTT for me when TX data is sent.
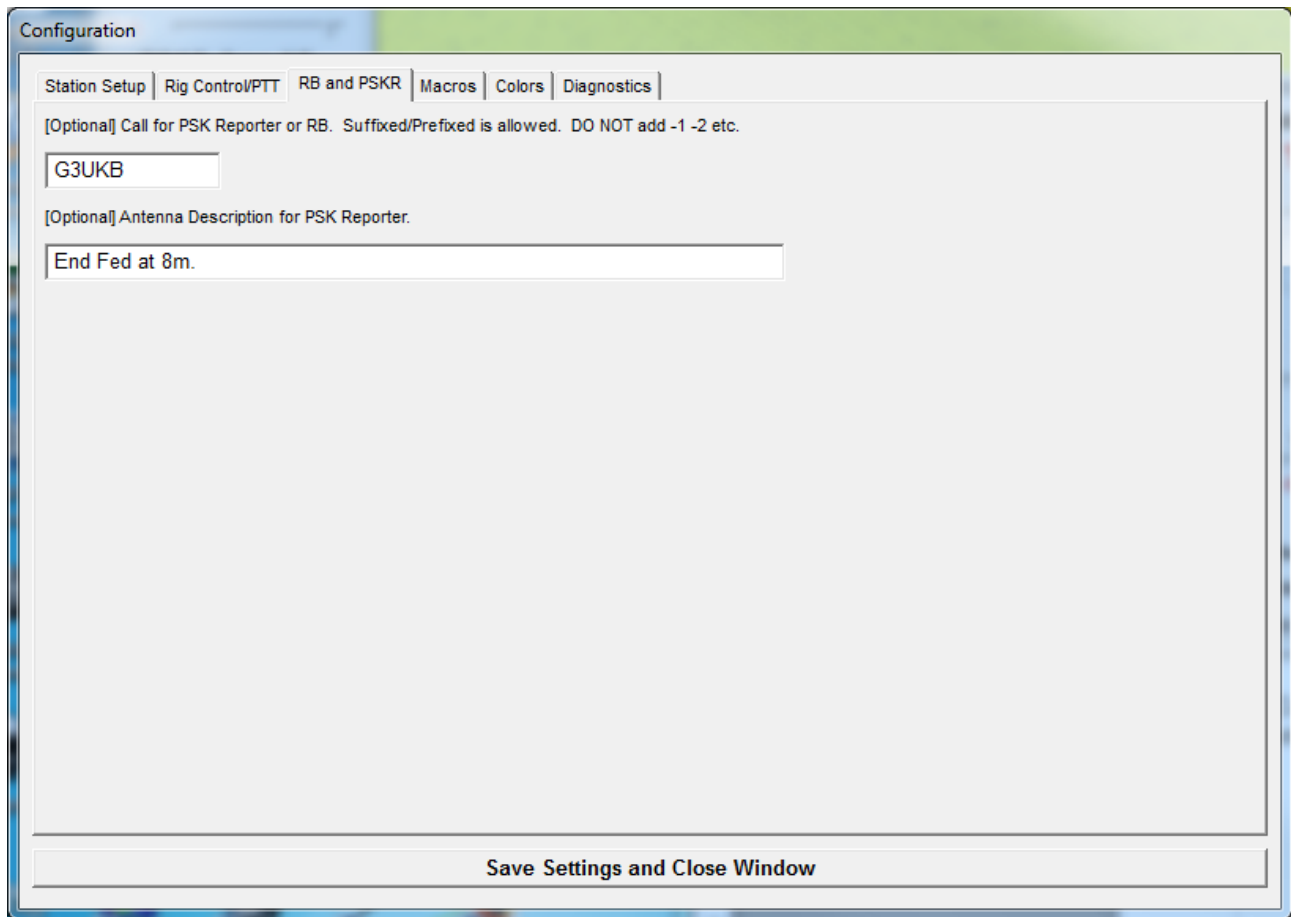
RB and PKSR – this is the so called Reverse Beacon information. This is a must have feature as it sends information over the internet to aggregators that keep track of all stations received at this

location and of course can be interrogated to see where my signal is being received. The Reverse Beacon relies on operators enabling this feature and leaving their station on at least some of the time when not in use.

Note that RB must be enabled on the main application window in order to use this information. The data is shared with W6CQZ's RB website and with the PSK reporter PSKR website.

The remainder of the settings were left at the defaults.

5.1 Monitoring

After the initial setup the main window shows the following.
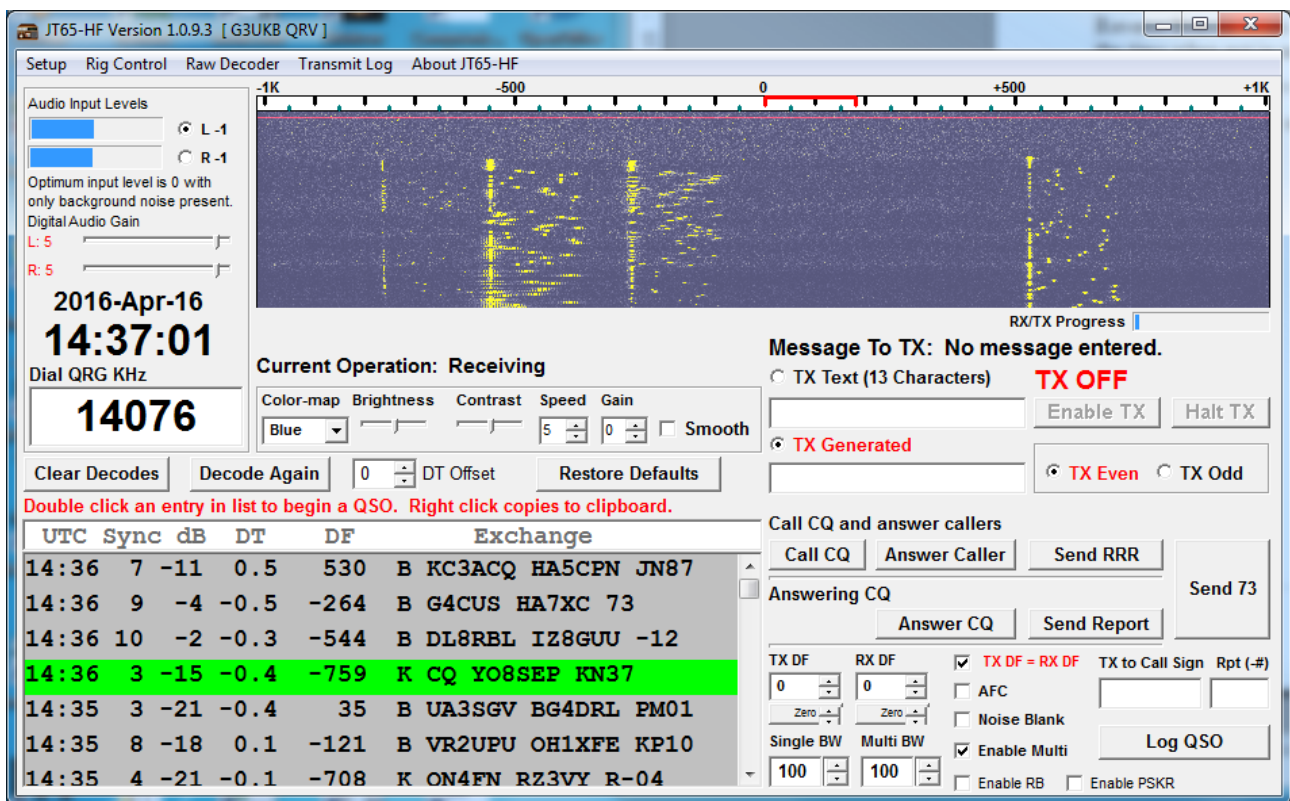
The RX level adjustment on the SignaLink has been adjusted to give approximately 0 input level which is deemed to be the optimum level. As I don't have CAT set up the Dial QRG has been entered manually, which is the 20m JT65 frequency. A number of stations can be seen in QSO and calling CQ. I have not enabled RB or PSKR yet so this data will not be shared.

The decoding window contains information about the stations including signal strength, time deviation, frequency deviation and the callsign of the calling station or of the communicating stations. Where there are 2 callsigns the second is the currently transmitting station.

5.2 First QSO

UA3ALE located in square KO85 is calling CQ. Calling stations are highlighted in green. Double clicking this entry causes a reply to be sent during the next TX phase. The data transmitted is shown in the field below 'TX Generated'.

UA3ALE responds by sending me a signal report of -15 (reports are always in dB). Double clicking this response returns a signal report of -14.

JT65-HF Version 1.0.9.3 [G3UKB QRV]

Setup   Rig Control   Raw Decoder   Transmit Log   About JT65-HF

Audio Input Levels
⦿ L 0
○ R 0
Optimum input level is 0 with
only background noise present.
Digital Audio Gain
L: 5
R: 5

2016-Apr-16
15:11:14
Dial QRG KHz
14076

Current Operation: Transmitting
Color-map Brightness Contrast Speed Gain
Blue ▾   5 ÷ 0 ÷ ☐ Smooth

Clear Decodes   Decode Again   0 ÷ DT Offset   Restore Defaults

Double click an entry in list to begin a QSO. Right click copies to clipboard.

UTC	Sync	dB	DT	DF	Exchange
15:10	7	-7	0.1	964	B DL1BA 9H1SS R-05
15:10	4	-16	-0.2	654	K G3UKB UA3ALE RRR
15:10	8	-13	-0.2	396	B F1IEE YO8RSL KN37
15:10	9	-9	1.2	-258	B G6PCU US1MD KN98
15:10	4	-16	-0.1	-458	B CQ IW3IEH JN55
15:10	11	-13	0.1	-807	B F8DYD RZ3VY R-14
15:09	13	-18	-0.3	1001	B OK1VKK RW3TY R-14

RX/TX Progress

Transmitting: UA3ALE G3UKB 73
○ TX Text (13 Characters)   TX IN PROGRESS
                                    Enable TX   Halt TX
⦿ TX Generated
UA3ALE G3UKB 73   ○ TX Even ⦿ TX Odd

Call CQ and answer callers
Call CQ   Answer Caller   Send RRR   Send 73
Answering CQ
Answer CQ   Send Report

TX DF   RX DF   ☑ TX DF = RX DF   TX to Call Sign Rpt (-#)
654 ÷   654 ÷   ☑ AFC   UA3ALE   -16
Zero   Zero   ☐ Noise Blank
Single BW Multi BW Enable Multi   Log QSO
100 ÷   100 ÷   ☐ Enable RB ☐ Enable PSKR

UA3ALE then responds with 'RRR' (Roger, Roger, Roger). Double clicking this response sends the closing message '73' .

To finish up I click the Log QSO button which writes a log report in a standard ADIF format to a nominated directory.

Log Contact

Call UA3ALE   Grid KO85

Date 20160416   Start Time 1511   End Time 1514

Sent -16   Received -15   Power 20   Watts

Frequency 14.076   MHz

Notes

Location of Log file (jt65hf_log.adi)
E:\RadioResources\jt65\Logs

Log Contact And Close This Window   Cancel

☑ Clear notes for each new QSO

6 Notes

1. Keep the power level down. I cranked back to 20% which is around 20W. This is considered high power for JT modes even with a poor antenna which mine definitely is.

2. Keep the transmit audio level down otherwise the signal will not be clean. Keep the ALC no more than just kicking.

3. JT65 has not been without controversy. The real S/N performance has been questioned as has the use of so called 'deep search'. These are things that you really have to draw your own conclusions about.

7 Reverse Beacon Network

From my single QSO, below is a report from pskreporter (which now covers all modes, but started off with just PSK, hence the name). As can be seen there are 26 reception reports, the furthest being N2ACQ in Virginia at 6118 kilometres.

Having left my receiver running for a few hours, JT65-HF has logged 216 reports over 36 countries to pskreporter.
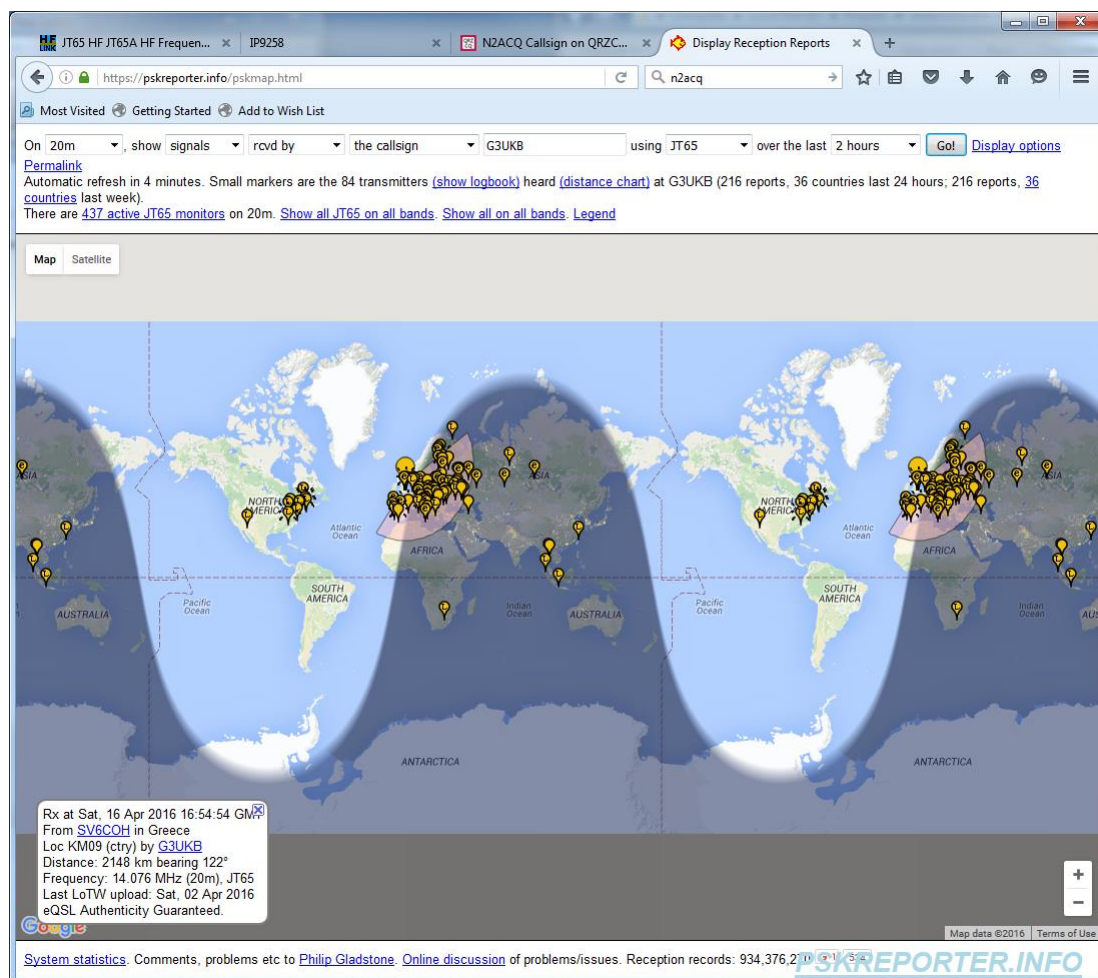
8 Conclusion

This may not be everyone's cup of tea and I'm sure JT modes aren't news to most active amateurs but they were new to me and it was fun and surprisingly easy to set things up and get a QSO on the first try. It's certainly going to be one of the modes I shall use. The RB network is really neat and I shall be leaving my receiver on to add to the data whenever I can.

9 References

1	RSGB bookshop - Work the World with JT65 and JT9
2	http://physics.princeton.edu/pulsar/k1jt/wsjtx.html WSJT-X – this is the original work by the author of the JT modes Dr Joe Taylor, K1JT. This is the only option at present for JT9. This is still under active development as far as I can tell.
3	http://jt65-hf.com/ JT65-HF – has become a popular alternative and arguable has a slightly nicer interface. I don't believe this is under active development and the last posts seem to be 2012 but then it does what it does very well and maybe at some point it will be resurrected for JT9

Bob G3UKB

Club Membership

Many thanks to Steve (G8CRB) CDARC's Treasurer for supplying the Membership renewal details. As you can see from the pie chart, as a club we are doing something right with the number of repeat membership renewals also the healthy number of new members is encouraging.

As publicity officer I need help with ideas on how to attract new members or bring previous members back to the club, we have excellent presentations and a wide spectrum of radio related activities from socials, training (Morse & Ofcom Exam), fully equipped shack , field events from a very successful contesting team to special event stations, special interest groups for low power transmitters, meteor scatter, satellites communications, digital modes and microcomputers such as Raspberry Pi or Aurduino's, construction of projects, High Altitude Balloons and the list goes on… truly a club with something for everyone.

The memberships portfolio of skills and experience is impressive and advice and help is always willingly given. Please do your bit and promote the club, bigger is defiantly / definitely better ☺.

How to become a member:

1   Print Application Form or contact treasurer@cdarc.co.uk via e-mail

2   Complete application and return to address on the form with the correct fee.
        or
        Come to one of the Friday club nights and ask for Steve.

3   That's it!

CDARC Membership Breakdown 2016

Legend:
- Renewals
- New Members
- Returning Members

8%
27%
64%

Ian M0HTA

Agony Aunt
Your confidential advisor for all your personal problems.

Dear CDARC Agony Aunt,

I have a problem with my rig's microphone so got off work early to look at it, when I got home I thought it was strange that the bedroom curtains were closed, so when inside, I went up the stairs to see why. It was at that point I heard noises from the bedroom, rushing in I found my wife in bed with my brother.

What am I to do?

Yours truly,

Speechless

Dear Speechless,

What a terrible situation you have been put in, my advice would be to find a clear area to work and dissemble the microphone carefully, noting where each screw came from, once the microphone case is removed, check for dry joints or signs of stress fracturing of the cable where it leaves the microphone.

Hope this helps.

CDARC AA

Dear CDARC Agony Aunt,

My husband spends more time talking on the radio more than he does me, what should I do?

Yours truly,

Concerned

Dear Concerned,

Do you have a brother in law?

Hope this helps.

CDARC AA

Dear CDARC Agony Aunt,

For my husbands birthday, I have bought him a radio thingy as a surprise present, the shop assistant was very helpful when I asked did they have one in another colour as black doesn't go with the curtains, he suggesting painting it, can you advise if I should use emulsion or an oil based paint.

Yours truly,

Mystified

Dear Mystified,

I would advise using an oil based paint, make sure you rub the existing finish off to expose the base metal before painting, a word of caution, shops do get a bit touchy on replacing radios if you remove any of the lid screws, if you can, carefully use masking tape to stop getting paint on these.

Hope this helps.

CDARC AA

A hedgehog trained to scuttle up and down the table from guest to guest makes an unusual mobile cheese and pineapple cube nibble dispenser at cocktail parties.
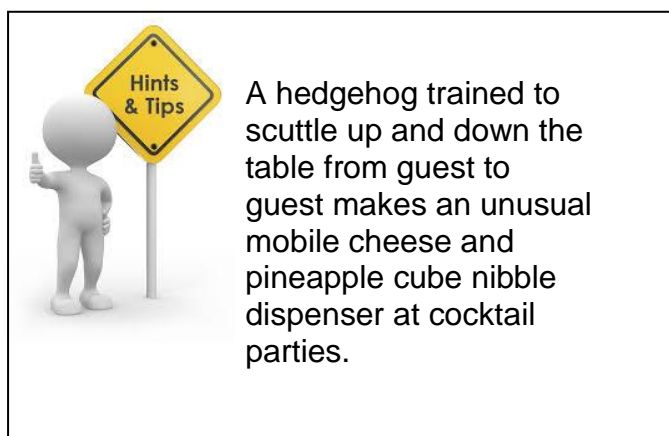
CDARC have had a social media presence on the internet since 2014, both Facebook and Twitter have had a recent makeover to enable CDARC to continue to reach new members or those interested in the hobby using a popular medium which can be accessed from a Personal Computer, Smart phones and Tablets (not the prescription type!).

The statistics for Facebook visits are really positive, more people are 'liking' pages and passing comments on topics posted, Twitter is a more 'punchy' way of communicating, 'Tweets' (the name used for the messages sent using Twitter) are limited to no more than 140 characters, as post appear in real time, these are the best source of the latest information if for example you wanted to know if the shack at the college is open or not.

If you are interested in Facebook or Twitter and not sure what to do or what you need, please get in touch with any of the committee and they will point you in the right direction.

The links to CDARC's Facebook and Twitter pages are here:

Facebook

Facebook Group Page

Twitter

The CDARC website is linked here:

CDARC

CDARC on QRZ.COM

Events and Activities are the cornerstone of CDARC, this sets this club apart from others, most club nights there is an activity and outside of club nights, members participate in contests and field events.

The CDARC e-calendar can be found HERE.

Programmed events at Coleridge Community College up until Christmas –

Date	Event
13 May	Operating Review presentation
27 May	CNC Milling presentation
10 June	Electric Field Mill presentation
24 June	Mast Fitting presentation
8 July	Foxton Village Hall activity
22 July	Surplus Sale of goodies
12 Aug	Data Mode demonstration
26 Aug	ELF & VLF Signals presentation
9 Sept	Club Night SDRPlay
23 Sept	TX Factor Video & Shack night
14 Oct	Intruder Detection Systems
28 Oct	Constructors Evening
11 Nov	Club Night
25 Nov	Club Night
9 Dec	Xmas Social & Quiz

We would love to hear what you are working on, or for you to share an experience in a presentation, slots are available this year, please get in touch with John (Events) events@cdarc.co.uk.

Past presentations in recent times have been on a wide range of topics, not all amateur radio related:

- Radio Surveys in the 21st Century
- The British Antarctic Survey
- Remote HF Project
- NVIS Propagation
- Biotech – how it relates to Amateur Radio

Ham Humour

An old, old ham was lying in his death bed upstairs. His most favorite food in the world was chocolate chip cookies. As he lay there, gasping for each breath, he was sure he could smell freshly-baked chocolate chip cookies. He crawled out of bed and slowly limped down the stairs. Sure enough, across the kitchen, there was a huge platter of chocolate chip cookies on the table. He finally made it to the table and he reached a shaking hand towards the cookies. Suddenly, his XYL slapped his hand sharply and yelled,
"DON'T TOUCH THOSE-they're for the funeral!"

Did you hear about the two amateur operators who got married and combined their antenna farm?

The ceremony wasn't much, but the reception was spectacular.

Q: How do you greet a ham radio operator?

A. With a short wave.
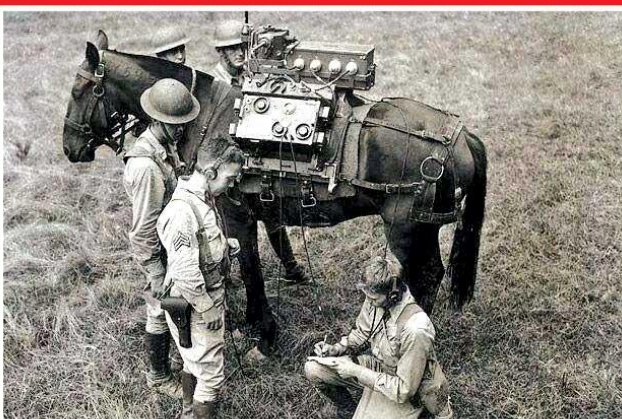
"That's it, joystick forward to make him go faster, joystick back to slow him down, and don't press the red button until he reaches their front line"

I was walking past the mental hospital the other day with my trusty Baofeng radio by my side, and all the patients were shouting,'13....13....13'... Could it be that they were trying to get me on S13?
The fence was too high to see over, but being the typical curious ham, I saw a little gap in the planks and looked through to see what was going on.
Some nut case poked me in the eye with a stick.
Then they all started shouting '14....14....14'...

REWARD OFFERED

A reward of 500 microfarads is offered for information
leading to the arrest of this desperate criminal - Hop-A-Long Capacity

This unrectified criminal escaped from a Varta primary cell where he had been clamped in ions awaiting the gauss chamber.

He was charged with the induction of an 18 turn coil named Millihenry who was found choked and robbed of valuable joules

He is armed with a carbon rod and is a potential killer. If encountered, he may offer series of resistance.

Capacity is also charged with driving dc motor over a Wheatstone bridge and refusing to let the band-pass

The electromotive force spent the night searching for him in a magnetic field, where he had gone to earth. They had no success and believed he had returned ohm via a short circuit

He was last seen riding a kilocycle with his friend Eddy Current who was playing a harmonic.

The 2016 CDARC committee members & Team are:

President:	John Bonner	G0GKP	president@cdarc.co.uk
Chairman:	Peter Howell	M0DCV	chairman@cdarc.co.uk
Secretary:	David Tegerdine	G0LRD	secretary@cdarc.co.uk
Treasurer:	Steve Blunt	G8CRB	treasurer@cdarc.co.uk
Training Co-ordinator:	Peter Howell	M0DCV	training@cdarc.co.uk
Publicity Officer:	Ian Cooke	M0HTA	publicity@cdarc.co.uk
Events Organiser:	John Bailey	M0MTW	events@cdarc.co.uk
Ordinary Member:	David King	G6KWA	davidking@cdarc.co.uk
Ordinary Member:	David Featherby	M0ZEB	davidfeatherby@cdarc.co.uk
Co-opted Member:	Chris Fletcher	M0WEF	chrisfletcher@cdarc.co.uk
Cambeam editorial:	Ian Cooke	M0HTA	publicity@cdarc.co.uk
Morse Training	Bob Grimes	G0GVZ	morse@cdarc.co.uk
QSL & Club Logs:	Colin Tuckley	G8TMV	colintuckley@cdarc.co.uk

Please ensure that Colin has your latest e-mail so you can be kept up to date with news and events.

As well as being an active CDARC member, Colin is also the RSGB Deputy Regional Manager for District 121, Region 12 (Cambridgeshire).

CDARC Webmaster:			webmaster@cdarc.co.uk
Auditors of Accounts	Tony Harding	G3RGQ	
	Richard Parker	G4AWP	

Not forgetting *'he who cannot be named'* for his outstanding contribution to CDARC.

Blast from the past

This is a club notice from the December 1964 copy of Cambeam:

By the time this edition of the Cambeam reaches you it will be almost 1965 and the start of a new Club year. May we remind you that subscriptions are due on January 1st. For the benefit of new and prospective members the subscriptions are always renewable on the first of January but the amount of the first subscription is based quarterly. That is: - January £1, April 15/-, July 10/-, October 5/-

Link to the original Cambeam article is here.

What happened in December 1964? (Useless information)

- Ringo Starr's tonsils were removed
- Nobel peace prize awarded to Dr Martin Luther King
- James Bond 'Goldfinger' premieres
- Donald Campbell (UK) sets world water speed record (276.33 mph)

South American Adventure "helped " by Amateur Radio – Richard G4AWP

In the early 80s I worked for the British Antarctic Survey, wintering first at Halley the most southerly of the British Antarctic Bases (living 40 foot below the surface of an ice Shelf in a steel tube), and then for a second winter on the Sub Antarctic Island of Signy, in the South Orkneys. I took my brand new Kenwood TS 130S (still have and now elderly & creaking) with me to activate my call sign VP8ALD.

Radio Communications from Halley is difficult, whereas from Signy was much easier. I did most of my operating from a wooden hut, situated just above the base, looking north over the South Atlantic. I was using 100w out, into a 140 foot long wire about 20 feet above a rocky surface, using wire counterpoises laid out on the surface. This set up allowed me to keep a weekly schedule, with a friend in the UK who had similar power and a mini beam. I frequently spoke, not only with other Antarctic bases, the Falklands, and many Europeans, but also with what I might now consider exotic DX such as Tristan da Cunha, St Helena & Norfolk Island in the Pacific. I preferred to rag chew, rather than just send reports, which some may have found frustrating, my belated apologies to any of you who may have tried to contact me, 30 odd years ago! I was thrilled when I managed to contact an amateur, Derek G3LSY, I knew well, who struggled with a small vertical.

As I intended to travel through South America I was particularly interested in amateurs, whom I might then later meet in person from that continent.

On leaving the Antarctic, the ship RRS Bransfield dropped me (and three travelling companions) at Montevideo, Uruguay. The ship remained in port for a couple of days. During that time we travelled freely in & out of the port. I spent an interesting afternoon with Edwin, CX1DDI who had been an official in the British Embassy during the Graf Spey crisis in the early part of WW2. I had (slightly cheekily) borrowed the ship's slide projector

to show Edwin some interesting pictures of where I had been in the South.

When the ship finally sailed back south, we went to the quay to wave goodbye to our friends, and then proceeded to head for the port exit. The officials, who had previously let

us pass in and out without any questions, now insisted on searching us, and because I was carrying a small portable radio was not allowed to leave until a small $10 bribe had passed hands. We suddenly felt rather vulnerable. Later that evening we travelled towards Brazil. At 2am on the border, the four of us were marched off the bus, and questioned as to why our passports showed no Uruguayan entry stamp. Luckily I found the scrap of "official" paper in my back pocket that allowed us to enter and leave Montevideo port freely, the others had thrown theirs away. The border guards accepted our explanation and our journey continued.

After some more adventures we spent a few days in Hotel Poker, Asunción the capital of Paraguay. The Hotel was next to the railway engine shunting yard standard gauge steam engines, British made, and powered by burning wood! We were allowed to wander across the tracks, remembering the recommendation of the "South American Guide" to travel on Paraguayan trains, but warnings of frequent derailments, but slow enough not to be concerned!

I went off to visit Malcolm, ZP5RG. He was an expat American who had the most fantastic line up of Collins' equipment. You can see a picture of his shack as I remember it in the book "Hello World A Life in Ham Radio Danny Gregory, Paul Sahre", and also at http://hamcall.net/call/ZP5RG.

Malcolm was horrified to hear where we were staying, as this was apparently a well-known brothel. We were innocents abroad, who had not realised that, but it did explain why the

hotel staff seemed to washing many more sheets daily, than the hotel had rooms!

One amateur I frequently talked to from my icy island, invited me to his home, a tropical island paradise, about 100 miles south from Rio de Janeiro, where we were heading to re-join the RRS Bransfield for another 3 weeks salary and trip back to Southampton. He better remain anonymous. He met two of us, on the Brazilian mainland about 100miles south of Rio. He had a small power boat, which took us about 5 miles across calm tropical waters to his small island home. He lived there, alone with his pet spider monkey. There was also a hotel on the island, about 5 miles away through dense jungle, where we were again taken by boat for a local seafood lunch. The two of us stayed in a small hut, on a golden sandy jungle lined beach. We could walk about a mile through jungle track to the Atlantic side of the island, in order to play in massive eight-foot breakers.

One evening I managed to contact Hugh (VP8HK/MM) the radio operator of the RRS Bransfield via our Brazilian amateur "friend's" solar powered amateur radio equipment. Hugh was able to tell us, not only which dock we needed to get back to, but also when, if we were not going to be left behind in South America. Our Brazilian "friend" was of German extraction, having been an officer in the Wehrmacht during WW2. He did not initially give an impression of having taken part in war crimes, but took delight telling us about his German South American amateur friends who clearly had taken part in atrocities. This began to make us feel rather uncomfortable, when he presented us with a very exorbitant bill for our stay. He clearly indicated this needed settling, if we were going to get a trip back to the mainland in time to re-join our ship. My travelling companion started to express some surprise, if not frank resentment at my offer to pay by cheque. I very firmly took control of the situation and paid the bill. Once back in our hut I explained to my companion I had seen our host was sitting on a Lugar pistol. The cheque was cancelled once we were safely on the mainland.

Post script:

On reviewing my Antarctic log book to look up names and call signs, I found in the back cover I had noted details of a regular schedule between VP8ANT, Richard the radio operator at Rothera base (now G3CWI of SOTAbeams), with G3ZAY Martin (I wonder what happened to him?).

I found this article by searching for amateurs in Asunción 1984. http://www.ncdxc.org/newsletter/1984/DXer0484.pdf see page 11. Several of the Paraguayan amateurs mention appear in my log book - such a small world !

Richard G4AWP

Click on link to Halley VI webcam looking North British Antarctic Survey.

https://www.bas.ac.uk/data/our-data/images/webcams/halley-vi-webcam/

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A recollection from CDARCs President

In a transmitter station in the middle east, one of the HF 4 kW frequency shift keyed TXs has just tripped again for the third time in a week. Different components had been swapped in sequence in the driver, PA and antenna but still the transmitter tripped. We diverted its traffic to another similar transmitter so we could run it "empty" on a spare frequency and observed its various meters and other indicators closely for clues.

Then, its secret was discovered as, luckily, someone was looking closely at the transmitter just as it tripped and saw a flash in the 6kV PSU compartment and also noticed a nasty smell!   When the PSU was opened the fault was obvious; there was a very well cooked rat between the HV terminal and case of the suitcase sized reservoir capacitor.

Every few days in the local temperature and humidity, the rat had swelled enough to bridge the gap on the capacitor until there was a new flash-over! While cleaning out the PSU an air inlet was found to have been pushed aside making an entry for the creature!

John G0GKP
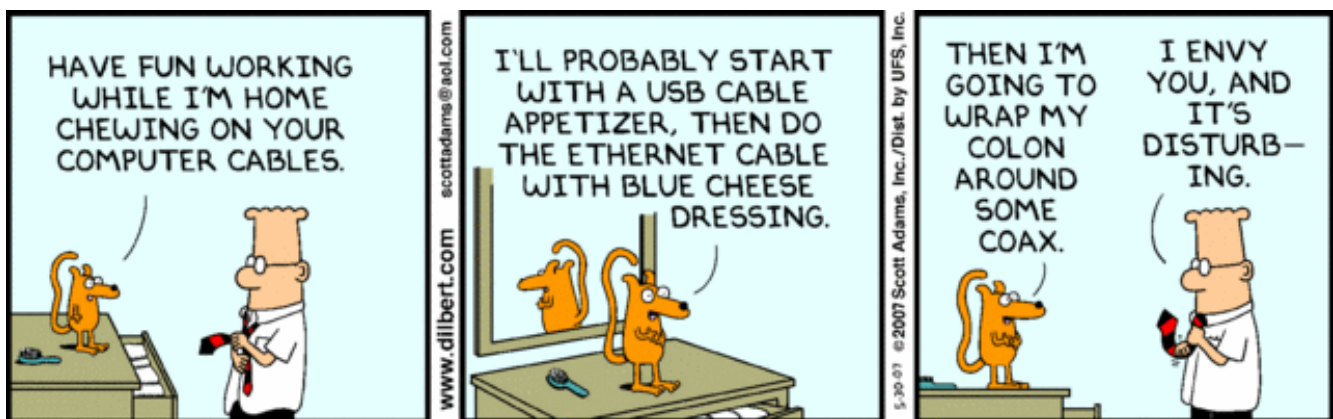
Well that's it for this edition, we hope you have enjoyed the mix and diversity of topics covered. Thank you for being a part of our success, please pass the link to Cambeam on to your friends and colleagues so they can see what all the fuss is about and hopefully join CDARC.

If you have any comments on this edition or ideas for future ones, please send them to publicity@cdarc.co.uk or see me at club nights.

A very special thank you all the contributors without whom Cambeam would not be possible, until next time.

73

CDARC Committee

C&DARC

Cambridge and District Amateur Radio Club

MEMBERSHIP APPLICATION OR RENEWAL

To apply for new membership or to renew existing, please complete this form and return it, with the appropriate fee, to the Treasurer, Steve Blunt either at the club or send it to 53, Butt Lane, Milton, Cambs. CB24 6DG . The club year runs from January to December, new members joining during the year pay pro rata. Cheques should be made payable to CDARC. The Treasurer will issue a receipt. The committee reserves the right to decline new applications at its discretion.

CLASS OF MEMBERSHIP APPLIED FOR			FEE
☐ FULL	*Over 18 or holds an Amateur Radio Licence*		£20 pa
☐ STUDENT	*Under 21 and in full-time education*		FREE
☐ COUNTRY	*Distant resident able to attend few meetings*		£10 pa
☐ ASSOCIATE	*Under 18 and not in full-time education*		FREE

Date of Birth (dd/mm/yyyy)   /   /   *(Student and Associate applications only)*

Qualification being studied for   *(Student Applications only)*

PERSONAL INFORMATION

FULL NAME _____   CALLSIGN _____

ADDRESS _____

_____

_____

_____   POSTCODE _____

TELEPHONE _____   MOBILE _____

E-MAIL _____

FAMILY MEMBERSHIP

Full Members only may include family members residing at the same address for 25% of the full member fee per person

FULL NAME _____   CALLSIGN _____
E-MAIL _____   MOBILE _____

FULL NAME _____   CALLSIGN _____
E-MAIL _____   MOBILE _____

FULL NAME _____   CALLSIGN _____
E-MAIL _____   MOBILE _____

DECLARATION

(i)   I wish to apply for or to renew membership of CDARC.
(ii)   I enclose my subscription for the membership option I have selected.
(iii)   I agree for myself and my family members (if applicable) to be bound by the club's constitution and rules.
(iv)   I understand that the information on this form will be kept on the CDARC membership list which is stored electronically, used only for club purposes and will not be passed on to third parties.
(v)   I understand that the e-mail address(es) above will be added to the club e-mail reflector. If I do not wish to send and receive club e-mails I may request the Treasurer to remove my address from the list.
(vi)   I agree for myself and my family members (if applicable) to observe the terms and conditions of the club's and the RSGB's insurance policies.

SIGNED _____   DATE _____