



Chelmsford Amateur Radio Society Newsletter

April Meeting

Tue 3-Apr-2018, 7.30-10pm
Oaklands Museum, Moulsham Street

FreeDV - Digital Voice for HF and other low SNR channels

By Matthew Phillips G6WPJ

A digital alternative to SSB on HF?

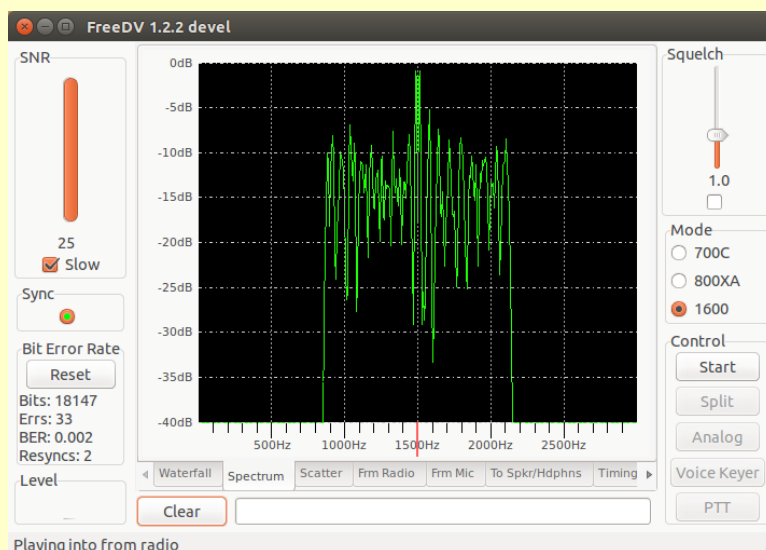
Since the beginning of 2017 the RSGB News (GB2RS) has been broadcast on 80m (~3.64 MHz) using FreeDV, an experimental digital mode intended to perform better than SSB voice in difficult radio environments.

Matthews talk will present information on FreeDV; what is it, how and why is it being developed by a worldwide community of radio amateurs and how can amateurs can try it for themselves.

Information will be presented on the pioneering work on the voice codec used by FreeDV, which is called 'Codec2', developed by David Rowe VK5DGR. In addition some thoughts on the future developments envisaged will be presented.

The talk will include slides, diagrams, simple algorithm descriptions and audio and video samples. An emphasis will be placed on practical ideas to become active.

We will have a refreshments break and our famous raffle - so do pop along!



IMD Weekend April-21/22 – See Inside

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Club Diary

Tue 3-Apr-2018	Meeting: Free-DV - Digital Voice for HF, Matthew Phillips G6WPJ	Chelmsford – Oaklands Museum, 7:30pm
Mon 16-Mar-2018	Skills Night	Danbury 7pm
Sat 21-Apr-2018	International Marconi Day – CARS Operating GX0MWT	Sandford Mill (and Sunday Aor-22)
Tue 1-May-2018	Unusual Antennas - John Regnault G4SWX	Chelmsford – Oaklands Museum, 7:30pm

Club Nets

CARS meets for talks/events on the first Tuesday of the month. The subsequent Tuesdays have club radio nets as follows:-

- 2nd Tuesday in the Month – VHF**
 The CARS VHF FM Net uses GB3DA from Danbury starting at 8pm (local).
 GB3DA is 145.125MHz Input and 145.725MHz Output - and CTCSS-only (110.9Hz), 2min timeout
 If for any reason GB3DA is not available then 145.375 Simplex will be used. Vertical aerials are best for this
- 3rd Tuesday in the Month - UHF**
 The CARS UHF FM Net uses GB3ER from Danbury and starting at 8pm (local).
 GB3ER is 434.675MHz Input and 433.075MHz Output - and is CTCSS-only
 Vertical aerials are best.
- 4th Tuesday in the Month - HF**
 The CARS 80m Net on "3756kHz" Night, SSB and starting at 8pm (local).
 Horizontal aerials are best. The idea is to enable distant CARS Members to join the Net.
- 5th Tuesday in the Month (when there is one!) - MF**
 This is the CARS Top Band Net on 1947/1950 kHz +/-QRM, LSB and starting at 8pm (local).
 Horizontal aerials are usually used for this Net. A reminder - limit your power to a max of 30 Watts, please.

Training & Exam Dates

Our training pages have the 2018 sessions listed for Foundation, Intermediate and Advance.

Our training manager Peter MOPSD is keen to hear from candidates for the 2018 courses, as well as any needing practicals or other help.

Our Morse Classes are continuing on Thursday evenings - Andy G0IBN is coordinating these as usual

Course	Dates	Comment
Intermediate-17	Thu Mar-22 nd – Jun-7 th	Places Limited – contact Peter !
Advance-21	Thu July 12 th (plus Jul-5)	Exam (optional mocks & Foundation/intermediate exams)
Foundation-38	Sept/Oct	In planning - Please register your interest!

Contact: Peter Davies MOPSD, training2018@g0mwt.org.uk Web: www.g0mwt.org.uk/training

 Follow @TrainWithCARS

 Follow @ChelmsfordARS

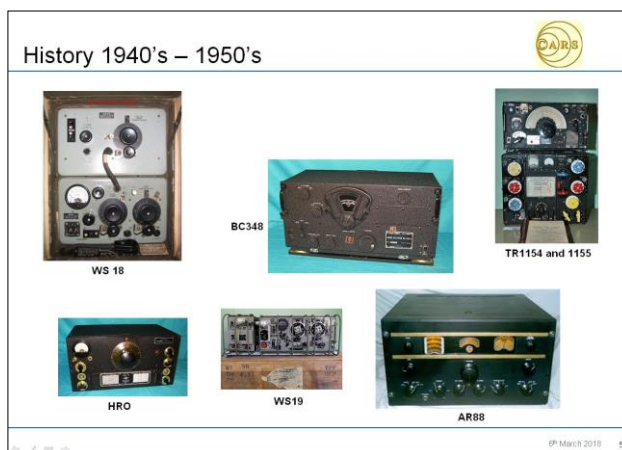
**March Meeting:
Military Radios for Amateur Radio**

To a packed room with 53 present, Andy Tyler G1GKN talked about using ex-military radios for amateur radio – particularly the Clansman series which are widely available. As Andy said - Go Green, Go Military!

The slide presentation started with early history with classics such as the ones right (and before SSB)

There is a wide variety of models (esp ex British Army Clansman models) that are now surplus on eBay and elsewhere.

Andy gave detailed guidance on what to avoid, as well as more interesting models that can be adapted to amateur bands:-



<p>Clansman HF</p> <ul style="list-style-type: none"> • PRC 316 (A16) - 2-7MHz, 4 Watts - and crystal channels only • PRC 319 Special Forces - 1.5-40MHz, 5W / 50W • PRC 320 HF Backpack Portable - CW, AM and SSB (Most USB-only), 2-30 MHz, 100Hz steps 3W/30w - quite popular • VRC 321 Vehicle-borne HF Transceiver (28V Base station version of the 320) • VRC 322 High Power Vehicle HF Transceiver (up to 200W) 	<p>Clansman VHF</p> <ul style="list-style-type: none"> • PRC 350 Inter-platoon Backpack – 36-57MHz FM, 2W • PRC 351 Inter-platoon Backpack/Vehicle – 30-76MHz, 4W • PRC 352 Inter-platoon Backpack/Vehicle - a 351 with a 20W PA (and optional vehicle TUAAM/ATU) • VRC 353 VHF FM Vehicle Transceiver - 30-76MHz FM, 50W
<p>Non Clansman</p> <ul style="list-style-type: none"> • RT 320/2 Base station version of the 320/1 - 2-30MHz (in 1kHz steps), 10W (or 100W with PV1311 PA) • PTR 2311 2-30MHz in 100 Hz steps, USB, LSB and AM, 20W (or 100W with PV421 PA) • PTR 2411 30-88MHz FM 25 kHz steps, 20W (8 memories, LED display) • PTR 5300 Base station or Backpack - 2-30MHz, USB, LSB and AM, 10W (or 100W with PV5320 PA) 	<p>Ones to Avoid:-</p> <ul style="list-style-type: none"> • PRC 349 Inter-Section Portable (37-47 MHz) • PRC 344 Forward Air Control (UHF - 225-400MHz)

Andy described one unusual design which was the Groundsat PTR3411. This was able to act as a full-duplex repeater with simultaneous transmit and receive on the same analogue channel - a clever trick!! - Designed and built by Plessey (Chris Richardson G3NAE)

Other info presented covered antennas, audio accessories, Morse Key, Hand Generator, various power and connection boxes and PSUs / battery packs

Our thanks to Andy for an excellent, thorough and popular talk - as well as Chris GOIPU for the raffle and Ann and Myra for the tea/cakes refreshments.

Useful Links:-

- More photos overleaf and on the [CARS website](http://www.carswebsite.com)
- www.clansman-radio.co.uk
- www.ptsnorfolk.co.uk
- www.milweb.net (Auctions)





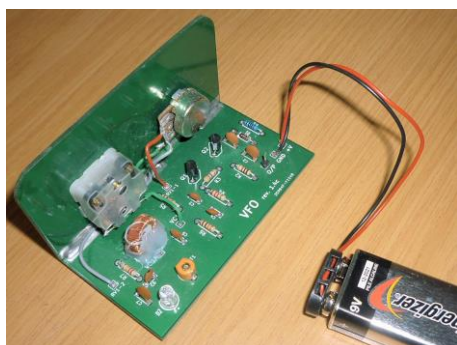
**Some of the working Clansman radios that Andy has and brought for the talk
- and Tony G4YTG presenting him with his CARS Sepeakers mug**

Essex Skills Night: March 2018

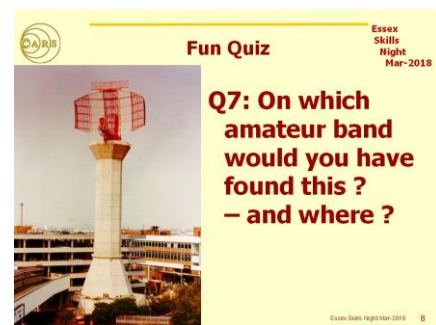
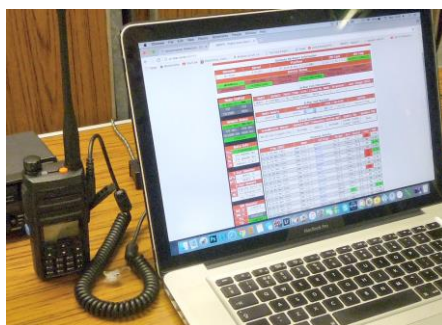
On a very cold Monday evening March 19th, nearly 50 people attended another busy session at Danbury. Activities include lots of different data and DV modes, SDR & Echolink, TARG & Essex-CW Club and Jim and Glynis doing a roaring trade in badge making. Intermediate-related demos and practicals were also underway in the rear Hawkins room. Below are some of the photos – more are online



Intermediate Components recognition and Chris 2E0CUU setting up his DV4mini



ThamesARG VFO Practicals Kit and the Essex CW G4OAD Trophy

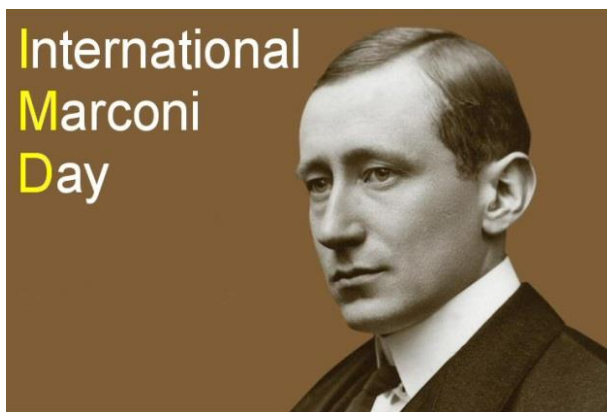


Badges being engraved by Jim 2E0JTW, Perry M6XPD Pi-Star DV demo and one of Murray's Quiz questions

The [website](#) has more photos of demos, as well as the latest Raspbery Pi and Cakes! Our thanks again for an excellent by Myra and Ann in the kitchen, helping the evening along.

NEXT EVENTS: Monday 16th April, May 21st

International Marconi Day - Saturday 21st April



International Marconi Day commemorates Marconi's Birthday on 25th April 1874, and is held on the nearest Saturday. CARS is registered as one of the Award Stations and will be operating on CW and SSB as GX0MWT. An IMD award can be claimed if you work 15 award stations. This year the arrangements are:-

- **Saturday Apr-21: IMD** - This year the main station will be operating SSB from the 2MT Hut. The CW team will be operating an additional station from the upstairs level. **Volunteer Operators would be most welcome.** We also expect to have some VHF radio as well as refreshments – more info nearer the day!
- **Sunday Apr-22: Invitation Day** - Following on from IMD we will also be there on Sunday showing our training schedule and equipment as well as transmitting from the Marconi Hut. This is an invitation-only day for Sandford Mill stakeholders - but CARS Members are welcome to come along.

**Exclusive invitation to a
'Private Sandford Mill Open Day'
Sunday 22 April, 10am – 4.30pm**



We would like to extend a warm welcome to yourself and up to 2 guests
 + Come and see the Marconi collections and new displays in the Marconi Hut
 + Explore the site and enjoy refreshments by the river

Directions: Sandford Mill Road, Chelmsford, CM2 6NY
 Follow brown signs from Chelmer Village way




Peter M0PSD

Visit to TARG

On Friday March 16th five CARS Members Peter M0PSD, Pauline M6XPK, Jamie M6LQZ, Chris 2E0CUU and Reanna SWL were invited to Thames Amateur Radio Group TarGET Nite. This included meeting the Mayor of Castle Point, Councillor Brian Wood and his wife Ann.

It was very enjoyable evening. It included a 3D printer display, as well as Morse and radio transmissions with the Mayor and his wife having a go at passing messages. We were requested to wear our CARS Shirts, showing how clubs come together.



Murray G6JYB: Amateur Radio Journey

As many know, my roots are in Manchester, where I was already dabbling in projects from Practical Electronics magazine. Some early pre-university career advice was to become an industrial sponsored student. By a roundabout route I ended up as a Marconi apprentice based at Springfield Place and Marconi Research Labs in 1980/81. A few others there were already licensed and so I ended up assisting 2m VHF Contest Logging (we used IC202 low power SSB). This inspired me to take the December-1981 RAE (the two-paper multi-choice format) back at a crowded C+G exam session in Manchester and I became licensed as G6JYB in early 1982. Looking back I was one of 3689 people who passed that all-time record Exam session (out of 5313 candidates), dwarfing the mere 250 passes we now get a year at Advanced.



Even before passing the exam, some apprentice dabbling led to my first radios - a rebuilt 70.26 AM Pye Westminster and a basic 2.3GHz transceiver made from Marconi scrap. The wider variety and challenge in rf compared to digital electronics subsequently steered me towards a more professional career path in rf/microwave technologies.

Chelmsford Amateur Radio Society & Essex Repeater Group

I didn't know about CARS until after graduation in 1984 but joined (in those days meeting at Marconi College), but just turned up for the talk and tea for a number of years. However one fateful club meeting in autumn 1990 (see the Oct-1990 newsletter), asked for some microwave help for the ERG 10GHz beacon leading to me to volunteer assistance. Its unfinished antennas were u/s leading to me to create its current slotted waveguide one and a first meeting with microwave expert Sam Jewell G4DDK near BT in Ipswich/Martlesham.

In those days ERG was based on the former Marconi tower on Danbury ridge and had issues with packet radio, DIY logic and MOLD causing GB3ER problems. Later in 1996 the site was lost and I was witness to a massive effort by Mike Wheaton G4ZPE et al in rebuilding GB3DA/ER in time for its July-1997 installation at its present site at Danbury (which at the time was owned by Eastern Electricity).

A few years later in 2002, Clive G1EUC (also with ERG) collared me to assist Chris G0IPU to bolster the new CARS training team just after the start of the Foundation licence system. This led to the introduction of the training slides that are now widely used by other UK clubs and abroad (Italy and Australia). Other things over the years have been talks/demos etc covering quite a variety - Repeaters, Ofcom Licensing, 2012 Olympics, TV/Radio Switchover, Antennas Live (where you can see the EM fields), SDRs etc.

Further afield

Meanwhile microwave matters continued to be interesting as Mike G4ZPE and I made annual trips to the Martlesham Microwave Roundtable. This eventually resulted in becoming the UK Microwave Group rep to RSGB Spectrum Forum in Dec-2004. Despite being the 'new boy' this led to being 'captured' to be RSGB Microwave Manager 'Designate' in late 2005 (eventually taking up the post in Jan-2007) as Mike Dixon G3PFR retired. This period was a busy one for RSGB as the old BR68 was being succeeded by the new Ofcom licence. Some years later in 2014 another change was succeeding John Gould G3WKL as overall Spectrum Forum chair and ongoing liaison with international friends and colleagues in IARU.

So in one respect one entire amateur career path arose from a dodgy beacon antenna and an annual day out. Overall its been quite a journey, with great changes over the period in both Chelmsford, Marconi and amateur radio and other technology – with no doubt quite a few more to come.

Murray Niman G6JYB

Intermediate Training

Thursday March 22nd saw a packed 17th CARS Intermediate Course get underway at Danbury. A few pictures from the first few weeks are below. The course runs to the end of May, with the exam being held on June 7th. For the latter we have booked the main hall to have enough room and to accommodate a few Foundation candidates as well.



Some of the candidates on Intermediate Course 17

Help Still Wanted !!...

- **Operators for IMD**
- **Newsletter Editor**
- **Newsletter Items**



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Newsletter and Archive: <http://www.g0mwt.org.uk/newsletter>