

The newsletter of the
Crystal Palace Radio & Electronics Club

Affiliated to the Radio Society of Great Britain
Established January 1956

Meetings are held on the first Friday of each month.
The room opens at 7:30pm for an 8pm start at:
All Saints Parish Church,
Beulah Hill, London, SE19 3LG
(opposite the junction with Grange Road).
Visitors are always welcome.

Web sites: Club Admin: <http://cprec.btck.co.uk/>
Club Technical: <http://cprec.btck.co.uk/OurTechnicalSite>
Email: crystalpalaceradio.club@gmail.com
Club Net: Each Wednesday at 20:00 on FM on 145.525MHz (S21) ± QRM
Twitter @BobFBurns or www.twitter.com/bobfburns

Club annual subscriptions are now overdue. If you have not already done so, please send your £12 payment to our Treasurer Ian or bring it to the next meeting.

Next meeting: Friday 6th April 2018

[*The British Vintage Wireless and Television
Museum*](#)

In this issue: *Future Meetings & Events, Recent Event News, Re-boxed by 'Theorist', Technical Snippetts, Members News, Miscellaneous, Noticeboard, Diary of External Events, News from other Clubs, Local Training Courses and Club Contact Information.*

Dear Reader

Our new club year commenced on 1st January and subs are now overdue so if you have not already done so please send your payment of £12 to our Treasurer Ian or bring it along to the next meeting. Members who have not paid by the end of March will be deemed to have resigned so if you have not yet paid [this will be your last newsletter](#).

Future Club Meetings and Events

06 Apr 18	M	'The British Vintage Wireless and Television Museum'
04 May 18	M	How Not to Win National Field Day by Quinn Collier G3WRR
01 Jun 18	M	Introduction to Electronics - Power Supplies by Bob G3OOU
06 Jul 18	M	Compact HF and VHF Aerials by Bob G3OOU and Damien 2E0EUI
03 Aug 18	M	Summer Social
07 Sep 18	M	Whisper (WSPR) Evening - Damien 2E0EUI
Oct 18	M	Practical Session - Building a compact VHF Aerial

C = Contest, CM = Committee meeting, E = External event, M = club meeting, R = Rally, T = Training course, V = Visit.

06 April 2018 - 'The British Vintage Wireless and Television Museum'

The British Vintage Wireless & TV Museum was established in the 1970s by Gerry Wells, whose life-long passion was radio. Sadly Gerry died over three years ago now, but he had made arrangements to ensure the collection lives on. He started as a small boy, with plugs and sockets, and building sheds! His line of sheds, here and in adjacent gardens could be said to be worth a visit for themselves.

The collection contains items from the earlier pioneering days of the 1900s to DAB radio: no, we don't approve, but they exist. Despite Gerry's apparent antipathy to semiconductors, we have a very fine collection of transistor radios, and later TVs, though our main exhibits there are dual-standard pre-war TVs (yes dual standard: 405 and 250 lines). We also have electrical miscellany: sockets, lamps, switches and old instruments.

As of recent times the Museum also has communication and even Amateur Radio equipment, things Gerry wasn't keen on but we think need including.

John Thompson and Phil Moss will give a talk on the Museum, Gerry, and illustrate it with some items from the collection.

Recent Event News

02 March 2018 - Club Project - Compact HF and VHF Aerials - Bob G3OOU and Damien 2E0EUI

Unfortunately this meeting had to be cancelled on the day before due to poor weather conditions and lack of public transport. It has been rescheduled for July and the

related practical aerial construction evening moved to the October 2018 meeting.

In a classic case of Murphy's Law, the roads were clear to drive on the day following our cancelled meeting!

A Note on Stephen Hawking by 'Theorist'

I must admit that I got an unexpected jolt when I heard of the death of Stephen Hawking. Having woken up and made a cup of tea, I switched on my laptop and visited the Guardian website. The news was on its front page, temporarily pushing the Salisbury nerve agent story and Brexit lower down; it was that big a story.

I attended a lecture by Hawking in 1977 give or take a year. At that time he was not the global celebrity that he later became, and indeed I was not really completely aware of who he was. The lecture hall was unusually full however, which should have been a clue that here was somebody special. He could still sit upright and talk, although he needed one of his students to interpret what he was saying. Hawking would say something and pause while the student translated.

By the end of the lecture it was possible to make out the odd word here and there, so with practice and exposure it must have been relatively easy for his students and those who knew him to understand his speech perfectly.

At the end when the first question came Hawking gave a long reply. When he had finished speaking his interpreter simply said "No", to a round of laughter. This was obviously a well rehearsed joke.

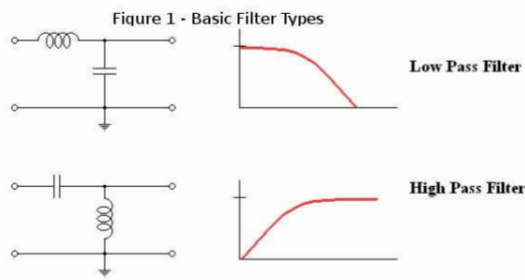
The obituaries gave other examples of his humour. My favourite was where he was asked "Professor Hawking, if there are an infinite number of universes will there be one where I am more intelligent than you?", to which Hawking replied "Yes. There will also be one where you are funny".

Re-boxed by 'Theorist'

A Hi Fi loudspeaker will have at least two units in it, one for higher frequencies, usually called a 'tweeter', and one for midrange/bass, usually called a 'woofer', although that term is perhaps best applied to a dedicated bass unit in a three (or more) unit loudspeaker. In a two-unit design if the signal coming to the loudspeaker box is fed directly to both units then the tweeter will have difficulty reproducing the bass, and the woofer difficulty with the high frequencies. Distortion in reproduction will be one of the results, although in extreme cases damage to a unit could occur e.g. if a tweeter was over-driven. With several units each trying to reproduce the same frequency range additional distortion will also occur. For these reasons it is desirable to split or filter the input signal so that each unit only gets the frequencies that it can handle best, and this is where a circuit called a crossover comes into play.

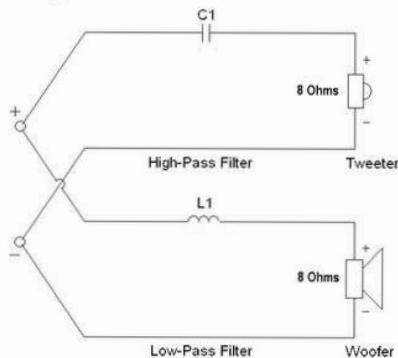
Capacitors are high-pass filters (HPFs). The impedance of a capacitor decreases with higher frequencies, so that it will allow high frequencies to pass but block lower frequencies. Inductors are the opposite. The impedance of an inductor increases with higher frequencies, allowing low frequencies to pass, but blocking or 'choking' higher frequencies. They are low-pass filters (LPFs). These two basic filter configurations are as shown in figure 1,

with a schematic indication of their roll-off effect on frequency shown. [1]



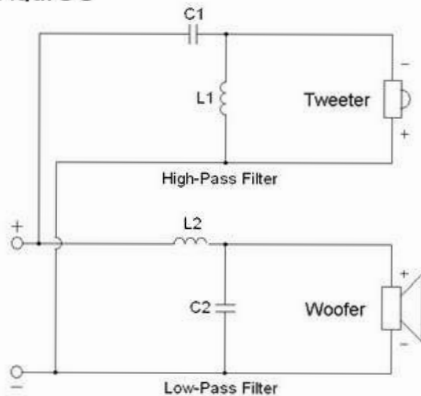
The slope of the roll-off is measured in dB/octave of frequency.

Figure 2



It is no surprise then that these two components form the basis for crossover circuits. The simplest sort of crossover would be that shown in figure 2. This arrangement would work and produce a 6dB/octave roll-off beginning at frequencies determined by the values of the components. This sort of design is called 'first order' because of this roll-off value.

Figure 3



However in combination a capacitor and an inductor produce a much greater roll-off. Take a look at the HPF part of figure 3. The capacitor is blocking low frequencies and the inductor is shorting them, resulting in a double-action effect and a 12 dB/octave roll-off. With the LPF part the inductor is blocking higher frequencies and the capacitor is shorting them, again giving the double-action roll-off. This is a 'second order' design. Third and higher order designs are also possible but have more components and are thus more expensive.

The main problem with all this is that real speaker units do not present a constant impedance with frequency. The 8 Ohm value shown for the units in figure 2 is a typical nominal value which in practice varies over the frequency range. [2] Units *can* have a reasonably constant impedance over quite a wide frequency range, but generally not at the point where you want the crossover to occur. They also resonate at particular frequencies as noted last month. Indeed a basic rule of thumb in crossover design is that the crossover frequency for a unit should be twice its free-air resonant frequency.

With different units having different efficiencies, resistors are often used in a crossover network to 'pad' a unit so that the frequency response is more flat, avoiding a step where one unit takes over from another. This is most often done with tweeters which tend to be more efficient, for reasons I don't know.

Choice of crossover components is very important, both the type and tolerance used. This is not really my area, as my moniker suggests. I do know that some of the older wire-wound resistors could have an inductance that affected the high frequency performance in crossovers. Also, as the very first article I ever wrote for the newsletter pointed out, resistors are temperature dependent, and this can have a big effect for crossovers.

There are also problems in the layout of the components in a crossover – the physical placement of the inductors needs special consideration as you might expect. It seems a good idea to keep the inductors as far apart as possible – again not really my area.

All this suggests that far from being simple the correct design of the crossover is the most difficult and probably the most critical part of loudspeaker design. A good crossover has to do more than just split the frequencies. It has to match the efficiencies of the units to avoid a step in the frequency response, to try and smooth out the frequency response around the crossover and resonant frequencies, and other things I have not even mentioned. Look up 'Zobel network' for example. There are also a number of software packages, some of them free, that can try and predict crossover response. Needless to say I have never used one in earnest.

[1] Some of you may be thinking about eggs and grandmothers at this point

[2] The IEC convention is that the impedance should not drop below 80% from the nominal impedance. For an 8 Ohms speaker this means that the real impedance could go as low as 6.4 Ohms.

Technical Snippets

a) Reforming Electrolytic Capacitors - I have mentioned this topic in previous newsletters but thought that some recent test results might be of interest. I purchased some brand new 220uF 450V Chemi-Con electrolytic capacitors for my new 2KV power supply and ran six of them through a reforming process as their date of manufacture and therefore their age was not known. Five passed with no problems and one did not and was rejected.

The reforming process consists of connecting each individual capacitor to a 450V DC supply via a series 150K 2W current limiting resistor and monitoring the current through the resistor. The leakage current started at 1.7mA but after thirty minutes had fallen to 20uA or less in all but one capacitor. A new replacement capacitor was reformed with no problems.

Had I simply connected these capacitors to the power supply and switched on the resulting much greater current surge might have caused one or more of them to fail.

The recommendation is therefore to always reform electrolytic capacitors, whether new units or old units that have not been used for some years prior to their use in order to minimise the risk of failure. There is a short article on this topic on the technical website.

When refurbishing old electronics equipment the worst thing that you can do is to 'apply power and see what happens'. The most likely result is that you will let the magic smoke out.

b) High Voltage Power Supply - the wiring is now complete and it has been powered up and soak tested for two hours without any sparks or releasing the magic smoke! The off-load output is 2400volts as expected and with the mains transformer rated at 850VA it should provide in excess of 400mA at about 2000v on-load.

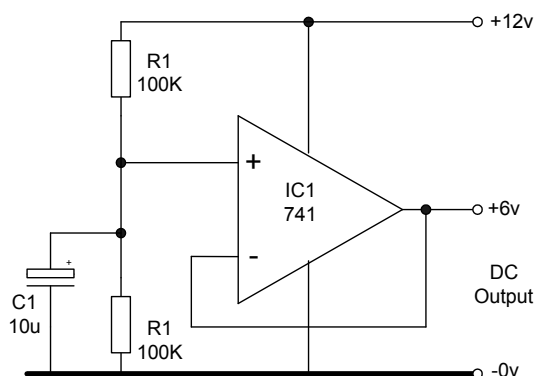
The incoming supply is fused, both DC outputs are fused and the power switches are interlocked so the bias supply must be switched on first. The electronics is completely enclosed with solid front and rear panels to minimise the risk of shocks.

c) Operational Amplifiers (Op-amps) are very useful gain blocks that have many analogue applications. Older designs like the 741 have higher limitations on their maximum input and output voltage swings. More modern versions have greater input and output voltage ranges and some can be described as rail to rail.

Important op-amp characteristics are frequency response, output slew rate, open loop gain, supply voltage range, input impedance, common mode rejection, compensation etc. A careful read of the data sheet and application notes is time well spent before you start using them.

Most op-amps are intended for use with dual supply lines, usually specified as $\pm 15\text{v}$ or similar with some devices like the CA3140 able to operate with supplies down to $\pm 2\text{v}$. For hardware applications intended to run from a single supply line like a car battery a stable and low noise voltage source of half the supply line will be required. This can be easily achieved using two equal resistors and a decoupling capacitor but if more current or a very low impedance voltage source is required then the voltage follower circuit may be used. It has the benefit of being able to sink or source currents up to 10mA as shown or higher currents with alternative devices. The 100% negative feedback loop means that the output impedance will be extremely low (fractions of an ohm) within its linear output capability.

Voltage Follower



At the other end of the output current range is the LM675 single op-amp which has a maximum output current of 3 amps and a maximum supply voltage of 60v.

Examine the data sheets to ensure that your chosen device will function correctly at your proposed supply voltage.

Another useful application of faster op-amps like the LM318 is low distortion rectification or amplitude modulation detection with frequencies up to about 500KHz. The op-amp is used to correct the distortion resulting from the curved response of the diode at low amplitude levels - typically below 700mV with a silicon diode like the 1N4148. The LM318 has a unity gain frequency of 15MHz so it is much faster than the 741.

d) Propagation

HF conditions are currently poor as we head down the eleven year sun spot cycle towards the minimum which is expected to be 2019 - 2020. However, some good dx can be heard/worked at sunset and sunrise which is known as grey line propagation.

Some early Sporadic E propagation has been heard on 10m (28MHz) and more is expected as Spring progresses into Summer. It will also occur during the summer on 6m when communications paths can be up to 2000km and low power (QRP) operation is much easier. There are a number of beacon stations on the 28MHz band which will provide an indication of propagation.

An alternative is to listen during international contests when supposedly dead bands suddenly spring to life. The CQ WPX CW Contest takes place during the last full weekend in May when the bands become completely manic - this is also a good test of your receiver dynamic range.

Members News

Wot No Signal?!?! Geoff Godfrey's sister Jean writes: Every Wednesday evening my brother Geoffrey has his radio receiver on to listen to the Crystal Palace group chatter. On Wednesday 14th February he was very puzzled as the airwaves were silent.

As an ex-BBC transmitter engineer he checked his equipment and even hung out an upstairs window to try and get a signal. It was then that I pointed out that

it was Valentines Day and the gentlemen were otherwise occupied.

Jean Godfrey

PS from Geoff: *However on making contact with Damien by phone (as I have not yet applied for a licence to bore other amateurs) I was informed they had moved to another channel. So they are not the romantics I first thought.*

Geoff continues: *In January I went to the City of London Museum (cityoflondon.police.uk/museum, free entry, open Monday to Saturday). Although small I found it very interesting including examples of Suffragette bombs made from mustard tins. City Police still hold the Olympic record for the tug of war event and you can take a test to see if you are a super recogniser of a criminal.*

Geoff is in touch with the family of silent key David Eaton regarding the clearance of his radio equipment and has noted the following items to date:

- Two Drake TR7 transceivers, 1.5-30MHz, 120W Tx, AM/SSB/CW/RTTY
- One Drake TR7A transceiver, 1.5-30MHz, 120W Tx, AM/SSB/CW/RTTY
- One Drake PS7 power supply (very heavy) 13.6v 25A continuous
- One 15amp power supply
- Four Raaco stoarge cabinets full of crystals

He will advise when they are available.

[Thank you Jean and Geoff.

The Drake receivers and transceivers were considered high end products in their day and are still popular and command high second hand prices today - Ed]

Miscellaneous

a) Morse Footware: A pair of smart shoes has been created to let industrial workers keep in touch via toe-typed coded messages. See:

<http://www.bbc.co.uk/news/av/technology-43205947/morse-code-shoes-send-toe-tapping-texts-at-mwc-2018>

b) While visiting Honeywood Cottage Museum in Carshalton I spotted a display of Geissler tubes. These are gas discharge tubes made of glass, with metal contacts on each end, which were first evacuated and then filled with a small amount of a gas like neon or argon that would glow when excited by an electric current passed through the tube from a high voltage source.

These were primarily used for entertainment in Victorian days but led to the discovery of the electron and other particles and were subsequently developed into neon tubes. In later years they were also used as indicators in high voltage power transmission systems, RF transmitters and aerial tuning units.

Google 'Geissler tube' for more information.

Notice Board – Wanted and For Sale

The Notice Board is for all club members to use so if you have one or more items that you wish to buy or sell then please send in the details. Some of the current list of items may be viewed at:

<http://cprec.btck.co.uk/SaleofClubEquipment>

All excl P&P.

For Sale

This month we have a bumper bundle of items for sale.

a) Robin G3NFV of Sycom has written in to say that the following equipment is available for sale before he advertises it more widely:

- Kenwood TS590S as new, box, mic, lead, manual £650
- Yaesu FT950, mic, lead, manual, box (not original) £575
- Yaesu FT897, mic, lead, manual box £425
- Collins KWM2, PM2 PSU, mic in Samsonite cases £725
- Collins 30L1 linear (wired for 110V but simple rewire for 230v AC) £425
- Kenwood R600 receiver £100
- Butternet HF2V 80/40m vertical, new in unopened box £265
- Cushcraft A3WS 12/17m 3el beam £100
- Cushcraft R5 20/17/15/12/10m vertical - buyer lowers and removes £150
- Wimo ZX2000 mini beam for 20/15/10m. 2m boom, 3 x 5m elements, new £275
- Sandpiper 10m Moxon, wire elements, new, boxed £80
- 2 x Fibreglass telescopic 60ft mast, new £100 each
- Create RC5-1 rotator + MC2 clamp, new, boxed £375
- Various two inch aluminium poles
- Set of two inch swaged poles, 6 off @ 5ft, £30
- Lots of transformers
- Philips PM3261 oscilloscope
- High power baluns
- Antenna shortening coils
- Semiconductor and component manuals (data books)
- Barker & Williams coil stock
- Meters
- Variable capacitors
- 300ohm ribbon cable, 100m for £50
- Loads of different cables
- Very large collection of test gear and amateur radio manuals
- Sandpiper Discone antenna)
- 2m J-Beam quad antenna) free!!!
- Old Oscilloscopes)

Contact Robin@sycomcomp.co.uk or 01372 372587 (answerphone)



G300U

Diary of External Events

15 Apr - West London Radio & Electronics Show (Kempton Rally)

Kempton Park Racecourse, Staines Road East, Sunbury on Thames, TW16 5AQ. Talk in station, on site free parking. Open 10am, disabled visitors 10 minutes earlier. Trade stations, Bring & Buy and SIGs, lectures, raffle and catering on site. Details from Paul, M0CJX on 0845 165 0351, info@radiofairs.co.uk. [www.radiofairs.co.uk]. Note that there will **not** be a similar event at Kempton Park in November 2018.

22 Apr - Cambridge Repeater Group Rally

Foxton Village Hall, Hardman Road, Foxton, Cambridge, Cambs CB22 6RN. Free parking, opens 9.30am, traders access from 7.30am. Entry £2. Talk in station. Traders, Bring & Buy, RSGB book stall, Catering on site. Contact Lawrence M0LCM on 07941 972 724, or email rally2018@cambridgerepeaters.net [www.cambridgerepeaters.net]

6 May - Southern Electronics & Radio Fair-Eastbourne Rally (SERF)

Eastbourne Sports Park, Cross Levels Way, Eastbourne, East Sussex BN21 2UF. Transport via buses from Sussex Downs College on Cross Levels Way and Kings Drive and by rail to Hampden Park station, a 10 minute walk from the Centre. Traders, clubs, outside car boot & table-top sale, catering, camping and caravanning. Details from <http://www.serf.org.uk>

17-20 May - Dayton Hamvention®

Greene County Fair & Exposition Center, Xenia, Dayton, Ohio, USA. Details by email from international@hamvention.org.

1-3 June - Ham Radio Show

Messe, Friedrichshafen, Germany. Trade stands, SIGs, IARU Member Societies have stands in the main hall. Large flea market. Lectures each day, some in English. Large RSGB book stall. More information from www.hamradio-friedrichshafen.de.

10 June East Suffolk Wireless Revival (Ipswich Radio Rally)

Kirton Recreation Ground, Back Road, Kirton IP10 0PW just off the A14. Opens 9.30am, free car parking, entry £2. Trade stands, car boot sale, Bring and Buy, SIGs, GB4SWR HF station and an RSGB bookstall. Catering on site. Contact Kevin, G8MXV, 07710 046 846, Web: www.eswr.org.uk.

24 Jun (new date) - 31st Newbury Radio Rally

Newbury Showground, next to Jcn 13 of M4, Berkshire. Amateur radio station, exhibits, SIGs, clubs and societies. Opens to sellers at 8am, visitors 9am. Free parking, entry £2.50 visitor, £12.50 CBS sellers pitch. Advance bookings (with discount) via www.nadars.org.uk/rally.asp On-site catering, disabled facilities. Contact: email: NewburyRally@nadars.org.uk, Web: www.nadars.org.uk

b) From the shack of Victor G1PKS:

- RF dummy load and watt meter
- SEM Z match £60
- Yaesu FT-101ZD HF transceiver £150
- SWR meter
- Trio R2000 receiver with HF & VHF £250
- Alinco 6m DR-M06 20W FM transceiver £75 (one offer received)
- Heathkit Oscilloscope
- PSU with variable output
- Advanced Morse Trainer MM2 by Microwave Modules Ltd plus power supply £60
- 2 Morse keys with sounders for training Cubs and Brownies £25
- A few variable capacitors left

Offers to Bob G300U on 01737 552170 or email [g300u\(at\)aol.com](mailto:g300u(at)aol.com)

c) Donated for club use or club funds by two Norbury residents:

- Philips PM3217 dual beam 50MHz scope with carrying case and manuals, £50
- Gould Digital dual beam 20MHz storage scope type 4035 with manual on CD, £30
- Box containing a Dataman S3 EPROM programmer with mains power supply, two external EPROM adaptors, some spare EPROMs and a printed manual.
- Olson mains powered UV EPROM eraser with timer
- Two boxes of assorted electronic text books
- Assorted project boxes
- Assorted die cast boxes
- Box of ICs, stepper motors and assorted interface PC boards
- New and unused RSGB amateur radio logbook

These items will be on a table sale at the next club meeting.

d) From the shack of Bob G300U:

- Commercially designed and made precision permeability tuned solid state VFO with built-in reduction drive, 7.6 - 8.8MHz, £75 ono. A photo may be seen at <http://www.qsl.net/g300u/pto.html>
- 1.4MHz crystal filters for USB & LSB, all tested, £15 each
- Pye 455KHz LC filter, 15KHz wide, £3

Offers to Bob G300U on 01737 552170 or email [g300u\(at\)aol.com](mailto:g300u(at)aol.com)

CPREC has a large bank of fundamental and overtone quartz crystals, from 1.0 – 99.91MHz. The list has now been completely updated with case classifications, sorted in frequency order and placed on the club web site as a downloadable PDF file. Prices are £1 each to club members and £2 each to non members, both exclude P&P.

28 - 29 Sep - National Hamfest

Newark & Nottinghamshire Showground, Lincoln Road, Winthorpe, Newark, Nottinghamshire NG24 2NY. Brought to you by the RSGB in association with the Lincoln Short Wave Club. Free car parking, disabled facilities, trade stands, Bring & Buy, car boot area, flea market, SIGs and RSGB bookstall. Representatives from the RSGB Services and committees. Morse proficiency tests, on-site catering outlets and a seating area. Information from www.nationalhamfest.org.uk

12-14 Oct - RSGB Convention

Kent's Hill Park Training and Conference Centre, Swallow House, Timbold Drive, Kent's Hill Park, Milton Keynes, Buckinghamshire MK7 6BZ. The Convention programme of lectures for all interests will be available on the website. Principal sponsor Martin Lynch & Sons. www.rsgbevents.org.

News from other Clubs

Club Secretaries – please ensure that your future meeting details are present in your newsletters, on your websites or sent to our newsletter editor Bob G3OOU. Palace Pulse is published about ten days before our club meeting which is on the first Friday of each month and closes for editorial contributions a few days before publication. Due to differing publication dates and short lead times it is getting increasingly difficult to include other clubs' events although we will endeavour to do so if advised in time. We do not have time to go chasing each club for the information.

Readers - If you plan to visit one of these club meetings please check with the club concerned in case of any last minute changes.

Bredhurst Receiving and Transmitting society

Meet on Thursday night from 8:30pm at the Parkwood Community Centre, Long Catlis Road, Rainham, Kent, ME8 9PN. Contact secretary@brats-qth.org or <http://www.brats-qth.org/brats/>

10 May AGM

Bromley & District Amateur Radio Society

Meets at 19:30 on the third Tuesday of each month at the Victory Social Club, Kechill Gardens, Hayes, Bromley, BR2 7NH. Contact Andy G4WGZ on 01689 878089 or [enquiries\(at\)bdars.co.uk](mailto:enquiries(at)bdars.co.uk). Web: www.bdars.co.uk

17 Apr The RSGB by Mick Senior G4EFO

15 May FT8 by Alan G0TLK

19 Jun Direction Finding by Steve 2E0DIZ

17 July A Technical "Show and Tell"

Chelmsford Amateur Radio Society (CARS)

19:30 on the first Tuesday of each month at Oaklands Museum, Moulsham Street, Chelmsford, Essex, CM2 9AQ. Contact: [secretary\(at\)g0mwt.org.uk](mailto:secretary(at)g0mwt.org.uk) Web: www.g0mwt.org.uk

03 Apr FreeDV by Murray G6JYB

01 May Unusual Antennas

05 Jun Table top sale

Coulsdon Amateur Transmitting Society (CATS)

8:15pm on 2nd Monday each month. Contact: Andy Briers G0KZT on 07729 866600 or [secretary\(at\)catsradio.org](mailto:secretary(at)catsradio.org). Web site: <http://www.catsradio.org/>

09 Apr Offshore Pirate Radio Stations by Mike Senior G4EFO

14 May DF Receiver Construction Evening by Terry G4CDY

11 Jun DF Hunt using the equipment made at the May meeting. Venue to be confirmed.

Crawley Amateur Radio Club (CARC)

Every Wednesday 20:00 – 22:00, every Sunday 11:00 – 13:00. Formal events are on the fourth Wednesday of the month, 7-30pm for 8pm. Phil M0TZZ on 07557 735265 or [secretary\(at\)carc.org.uk](mailto:secretary(at)carc.org.uk) or Web: <http://www.carc.org.uk/>

28 Mar Space weather effects on HF propagation by Dr Colin Forsyth

25 Apr Police Communications by Steve Shorey G3ZPS

23 May QE2 Communications by Duncan Brooker

Cray Valley Radio Society (CVRS)

Meets at 8pm on the 1st and 3rd Thursday of each month at 1st Royal Eltham Scouts HQ, Rear of 61 - 71 Southend Crescent, Eltham, London, SE9 2SD. Contact: Richard on [secretary\[at\]cvrs.org](mailto:secretary[at]cvrs.org). Web www.cvrs.org

05 Apr Refurbishing Heathkit Equipment by Bob Burns G3OOU

19 Apr Annual General Meeting

03 May Mini Talk and Natter Nite

17 May How Not To Win NFD by Quinn Collier G3WRR

07 Jun Antenna Clinic 2018

Dorking & District Radio Society

Meetings at 7.45pm. Contact: David Browning (M6DJB) at [djb.abraxas\(at\)btinternet.com](mailto:djb.abraxas(at)btinternet.com). Web site: <http://www.ddrs.org.uk>

27 Mar One Route Through Product Design by Bob Burns G3OOU

24 Apr The future of amateur radio by Nick Henwood G3RWF

22 May Meteor scatter by Nick Read M5DND

Echelford Amateur Radio Society

Meetings on 2nd and 4th Thursdays of each month at the Weybridge Vandals Rugby Football Club. Enquiries to John at [jho_g4gsc\(at\)btinternet.com](mailto:jho_g4gsc(at)btinternet.com) or 01784 451898.

Web site: <http://www.qsl.net/g3ues/index.htm>

26 Apr AGM

24 May On-Air / CW Practice / Bring & Buy / Natter Night

Hastings Electronics & Radio Club

Meetings held at the Taplin Centre, Upper Maze Hill, St Leonards on sea, TN38 0LQ, 7pm for 7:30 on the fourth Wednesday of each month. Information from Gordon Sweet M3YXH on 01424 431909, email: [sionet3344\(at\)hotmail.co.uk](mailto:sionet3344(at)hotmail.co.uk)

Web: <http://herc-hastings.org.uk/>

28 Mar Hubble-15 years of Discovery - DVD from European Space Agency

25 Apr Talk on Hastings by Richard Pollard

23 May Talk and demo by Tony Lunn on SOTABEAM's Portable Antenna System

27 Jun My Lifelong Electronics Hobby by Rodney

22 Aug Construction Contest

Hereford Amateur Radio Society

Meets on the first Friday of each month at Hill House, Newton, Nr Leominster, HR6 0PF. Contact:

enquiries@herefordradioclub.uk or

<http://herefordradioclub.uk/>

06 Apr Annual General Meeting

Horsham Amateur Radio Club

meets on the first Thursday of each month at the Guide Hall, 20 Denne Road, Horsham, West Sussex, RH12 1JF. NRQ TQ172304 at 20.00hrs local time. Contact Alister Watt G3ZBU at [g3zbu\(at\)hotmail.com](mailto:g3zbu(at)hotmail.com) or <http://www.harc.org.uk/>

05 Apr Breakfast Machine - Mervyn 2E0WVE
 03 May High Power Small Transmitting Loops – the secret is two parallel turns! - Mike Underhill G3LHZ

Mid-Sussex Amateur Radio Society (MSARS)

Meet most Fridays in the Millfield Suite, Cyprus Hall, Burgess Hill, RH15 8DX from 7.30pm till 10.00. Contact Stella on 01273 844511, [M6ZRJ\(at\)msars.org.uk](mailto:M6ZRJ(at)msars.org.uk) or www.msars.org.uk

06 Apr Surplus Equipment Sale
 20 Apr Radio Night and Table Top Sale
 11 May Prep for Mills on the Air
 25 May Construction Contest

South East Essex Amateur Radio Society (SEARS)

Contact Mark Callow 2E0RMT on 07842 336444 or [secretary\(at\)southessex-ars.co.uk](mailto:secretary(at)southessex-ars.co.uk) or <http://www.southessex-ars.co.uk/>

Meetings: 7pm 2nd Tuesday each month at The White House, Kiln Road, Benfleet, Essex, SS7 1BU.

10 Apr "Computers in Amateur Radio" by Henry Kleynhans

08 May "Public Safety Comms" by Steve Shorey G3ZPS
 12 Jun "The Birth of Broadcasting" by Tim Wander

Surrey Radio Contact Club (SRCC)

7.30 for 7.45pm on 1st. and 3rd. Mondays every Month. Contact John Kennedy G3MCX on 020 8688 3322 or [secretary\(at\)g3src.org.uk](mailto:secretary(at)g3src.org.uk). Web: <http://g3src.org.uk/>

02 Apr AGM
 14 May The Role of an RSGB Regional Manager by Mick Senior G4EFO

Sutton & Cheam Radio Society

8pm on 3rd Thursday every month. Contact John Puttock G0BWV on 020 8644 9945 or email [info\(at\)scrs.org.uk](mailto:info(at)scrs.org.uk) Web: <http://scrs.org.uk/>. SCRS run a practical group most Monday evenings at the Bandstead Scout Hut.

19 Apr BITX40 by Martin Butler – M1MRB
 17 May AGM & Constructional Contest

Wimbledon & District Amateur Radio Society

Meets on the 2nd and last Friday in the month at Matin Way Methodist Church Hall, Martin Way Merton Park, London, SW19 9JZ at 19:30hrs for 20:00hrs. Contact: Andrew G4ADM on 020 8335 3434 or [andrew.maish\(at\)ntlworld.com](mailto:andrew.maish(at)ntlworld.com)

Please replace the (at) with @ when using any email addresses shown in this newsletter.

Crystal Palace Radio & Electronics Club is a member of the South East Tutors training group.

Local Training Courses					
Licence Level	Dates	Location	Club Provider	Format	Further details
Foundation	14 Mar, 28 Mar, 11 Apr, 25 Apr, 09 May, 23 May with the exam on 13 Jun	Crockenhill Village Hall	Darenth Valley	Seven evenings, 8pm start	http://darenthvalleys.org/training.html
Foundation	07 and 21 Oct	Bromley	Bromley & District ARS	2 days (Sun)	www.bdars.org
Intermediate	Nov 2018 dates TBC	Eltham, SE9	Cray Valley RS	3 days (Sat)	www.cvrs.org
Intermediate	17 Feb, 03 & 17 Mar 2019	Bromley	Bromley & District ARS	3 days (Sun)	www.bdars.org
	= course commenced				

CPREC Committee Contact Information

Officers:		
Chairman: Damien Nolan 2E0EUI 7 Fonthill Court Honor Oak Road London SE23 3SJ 07900 242541 Gorby928(at)gmail.com	Secretary: Alan O'Donovan G8NKM 2 Mackenzie Road Beckenham Kent BR3 4RU 020 8778 9660 Alan.odonovan(at)btinternet.com	Treasurer: Ian Skeggs M6FZC Ground Floor Flat, 24 Kendall Road Beckenham Kent BR3 4PZ 020 8650 9049 ian.skeggs(at)btinternet.com
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