

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](mailto: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](http://www.twitter.com/bobfburns)

Club annual subscriptions are now due. 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 2nd February 2018

## [Annual General Meeting](#)

In this issue: *Future Meetings & Events, Recent Event News, Making More Waves by 'Theorist', Technical Snippets, Members News, Miscellaneous, Noticeboard, Diary of External Events, News from other Clubs, AGM Agenda, Local Training Courses and Club Contact Information.*

## Dear Reader

### Future Club Meetings and Events

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

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

### 01 Jan 2018 - Annual Subscriptions

Our new club year commences on 1st January and subs have now become due so please send your payment of £12 to our Treasurer Ian or bring it along to the next meeting. Prompt payment is much appreciated as it saves us the time and costs of having to chase members.

### 02 Feb 2018 - Annual General Meeting

The CPREC Annual General Meeting will take place at 8pm on Friday 2<sup>nd</sup> February 2018 at All Saints Church. An agenda is included on the last page of this newsletter.

At this event the committee will report on club activities in the past year and members will elect a committee for 2018 and have their say on past and future club events. The current officers and committee members have indicated that they are willing to stand for election but the committee has been short of two members for some years.

Please come along and have your say on club activities - without your feedback the committee can only guess on what you would like to see in the way of meeting topics and other activities.

### Recent Event News

#### 05 Jan 2018 - Video Evening

Although this meeting was poorly attended the three videos were extremely interesting and our new LED based projector and sound reinforcement system worked well.

All three videos were produced by Dave Casler KE0OG and are easily accessible over the Internet from YouTube on a PC or laptop. At the time of writing there were 114 short amateur radio videos from this producer under the banner of 'Ask Dave'.

The first video reviewed the BITX40 7MHz transceiver in respect of what is received in the package, the overall

construction, wiring and an initial enclosure for testing. Dave noted that his unit did not provide the full output power in the specification and also that this transceiver is intended for the maker and experimenter community.

The second video looked at how to use the transceiver and what to expect from on-air operation. It was noted that other band users will usually make an extra effort if they know that you are using QRP.

Technical information on the BITX40 may be obtained from:

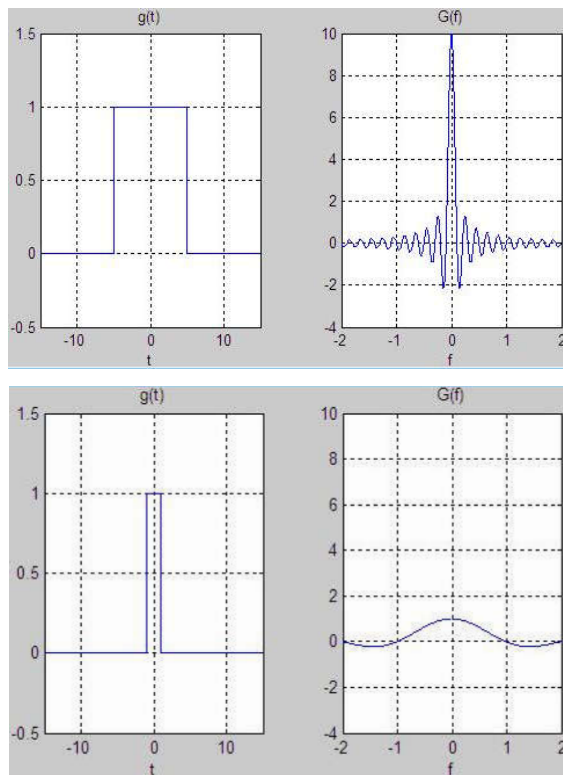
[http://www.hfsigs.com/bitx40v3\\_circuit.html](http://www.hfsigs.com/bitx40v3_circuit.html) which also has a link to the original 14MHz design.

The last video covered the use of the MFJ259B antenna analyser in building and testing a 6m (50MHz) dipole. The analyser is capable of measuring coaxial cable attenuation, velocity factor and SWR. The SWR minimum represents the resonant frequency of the aerial.

The 6m dipole at a height of about 5 feet above ground showed an impedance of 30 ohms. At a height of one half wave or more the dipole impedance will be higher.

### Making More Waves by 'Theorist'

Last month's column dealt with the Fourier Series as a means of decomposing a regularly repeating signal (such as a square, triangle or saw-tooth wave) into its frequency components – individual sine waves of discrete frequency, amplitude and phase. Fourier Transforms (FTs) are needed where a signal is not regularly repeating. This could be a single pulse, or a few non-repeating pulses, or a signal/wave varying in some odd irregular way.



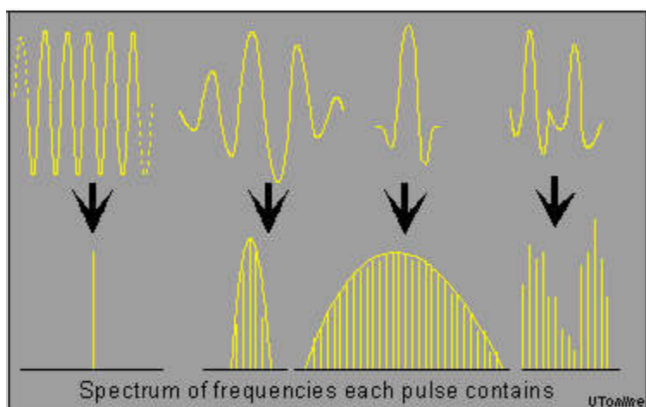
If the signal can be represented mathematically, as with a pulse, then an FT will easily display the component frequencies.

For the square pulses shown in the two diagrams the mathematical representation is that the wave has zero

amplitude everywhere except  $\pm t$ , where  $t$  is a time interval, and where the amplitude is 1. The two diagrams show pulses of different  $t$  widths decomposed into their component frequencies.

Note that the FT of the wider pulse gives a narrower more peaked spectrum, whereas the FT of the narrower pulse is very spread out. This is because rapidly changing signals need more high frequency content to represent them, or conversely contain more high frequency content. Is this obvious? A third diagram shows some other examples.

What if a signal cannot be represented mathematically in a simple manner? This is where Discrete Fourier Transforms (DFTs) come in. The idea is to sample the signal at regular intervals in the same way that audio signals are sampled when producing a CD, and then use mathematics to get the frequency components from the digitised signal. Before computers this technique was little more than a mathematical oddity, known only to some mathematicians, not least because the number of calculations needed to be performed varies as the square of the number of points sampled. For 40 samples or points you would need to do 1,600 calculations to get the frequencies/amplitudes/phases – time consuming as it is a reasonable assumption that the time needed also varies as  $N^2$ . The DFT is computationally slow.



Enter the FFT or Fast Fourier transform, which is a fast, efficient, form of the DFT. It is an algorithm that as its name suggests speeds up the computations. In 1965 Cooley and Tukey published a paper with an FFT algorithm in it that is still the main FFT algorithm used today [1]. That paper kick-started an 'FFT mania' that shows little sign of abating as the power of processors has increased. There are several different FFT algorithms that do the same job, all of which give the *same result* as a conventional DFT but in a time that varies as  $N \log(N)$ . The ratio of speeds compared to a DFT is therefore  $N/\log(N)$ . To give a concrete example, if  $N$  is one million (points/samples) then the speed improvement will be about 168,000, a truly massive performance increase. Again I emphasise that this improvement is not at the expense of accuracy. Give or take a computational rounding error here and there, the results of an FFT will be the same as a DFT. However to speed things up even more, 'inexact FFTs' have been proposed, sacrificing accuracy for additional increases in speed although these do not seem to have practical use at present.

The Inverse FFT (IFFT) is simply the inverse of an FFT. If the FFT/DFT converts a signal from a time domain to a frequency domain, then an IFFT converts (or perhaps I should say synthesises) a signal from its frequency domain to a time domain.

The FFT has a huge number of uses. In radio one use is in Software Defined Radio where the idea is to process signals using software rather than the familiar electronic components. This has only become possible in recent years as processor power and algorithmic developments have made real time FFTs possible. The incoming signal is digitised, subject to an FFT, and the desired frequencies selected. The July 2014 newsletter has a write-up of a talk given to the club by Prof Billington on SDR and is a good place to start to learn more information of this topic.

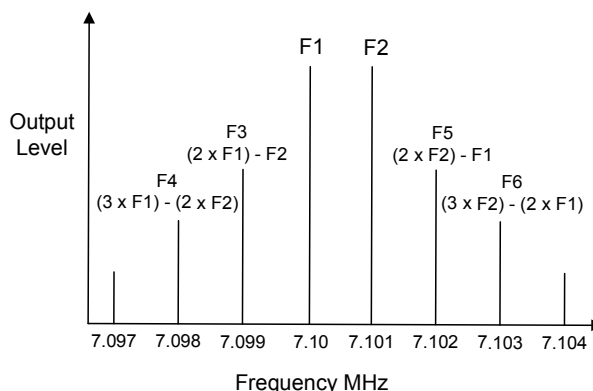
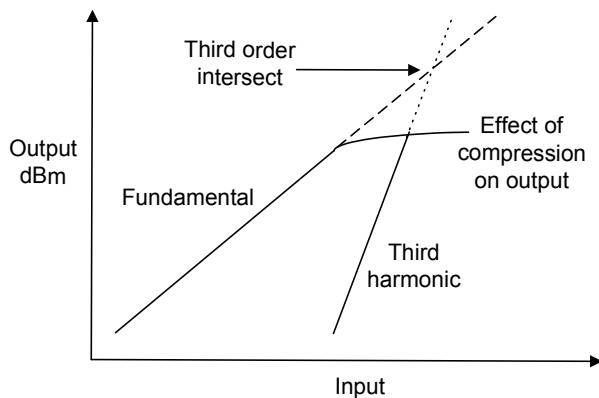
[1] It turned out that CF Gauss had come up with a virtually identical algorithm in 1805. Gauss has claims of being the greatest mathematician ever, and was the subject of a recent BBC 'In Our Time' Radio 4 programme, available as a podcast.

### Technical Snippets

**a) Intermodulation** - To complete the article on intermodulation (IMD) in the last newsletter some additional information and diagrams on non-linearity are provided below.

Linear amplifiers are used in both receivers and transmitters and any non-linearity in either can cause significant problems to the user of the equipment as well as other bands users.

The diagram below shows a typical amplifier characteristic up to and beyond the overload point and is one way to specify an intermodulation characteristic:



As shown above, the fundamental output increases linearly until the overload point is reached after which the output become compressed and distorted and the harmonic content increases rapidly. The third harmonic component increases at three times the rate of the fundamental and what we are interested in is the point where the projected fundamental line and the projected third harmonic line cross (intersect). This provides one method of measuring the IMD performance of an amplifier or receiver.

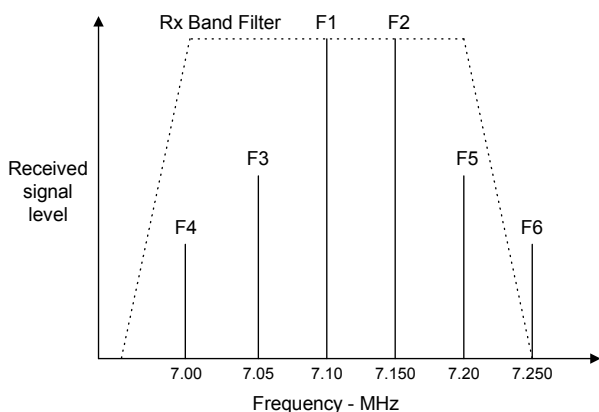
Receiver non-linearity can cause several basic problems:

- Distortion - the wanted signal loses clarity
- Intermodulation - one or more high level signals can mix with themselves and possibly other signals resulting in spurious signals being generated in the receiver on the frequency of a wanted received signal.
- Cross modulation - the modulation of one high level off tune signal can be transferred to a wanted received signal.
- Blocking - one high level signal can cause desensitisation (reduced gain) of a wanted signal

In all cases this results in some loss of quality of a wanted signal and in the worst case complete loss of that signal. These problems are particularly noticeable during contests or good band conditions where the band occupancy is very high or if there is a nearby transmitting station.

IMD in receivers may be improved by using the minimum amount of gain before the first mixer and also before the first crystal filter. That mixer should also have the highest dynamic range possible.

The following diagram shows the effect of intermodulation occurring in a receiver:



Signals at frequencies F1 and F2 are high level and inband. Signals F3 to F6 are some of the IMD products generated in the front end of the receiver and are unaffected by the front end selectivity shown as a dotted line.

An equivalent transmitter IMD spectrum is shown below which is typical of an SSB transmitter undergoing two tone tests:

Frequencies F1 and F2 result from two audio tones applied to the transmitter and frequencies F3 to F6 are some of the (odd order) IMD products generated

in the transmitter circuits - mostly in the final power amplifier. If the two tone were replaced by speech then the output spectrum would be much more complex. In the worst case this can cause interference to a lot of band users.

All of these issues become more difficult to resolve with receivers that have wideband front ends because of the presence of many more in and out of band signals. Some high end transceivers are now being provided with manual or automatic RF preselectors to attenuate out of band signals.

You can see from the above comments that in today's crowded bands it is important to have as good an IMD characteristic as is possible. A good test of your receiver is to listen to a busy band during a contest to see if you can separate out all of the individual signals and they all have good clarity.

Residents near to Crystal Palace can suffer from interference to their 144MHz receivers by pager transmitters. Our Chairman Damien has had this problem which he solved by the use of a high Q bandpass filter to attenuate the pager signals.

The initial design solution is to always use the minimum gain in the receiver front end prior to the mode crystal filters, a mixer with the highest possible dynamic range and adequate out of band RF selectivity.

**b) Band Conditions** - these are currently poor with the sun spot minimum expected sometime in 2019 and the next maximum expected to be low. Two website that seek to display band conditions in close to real time are shown below.

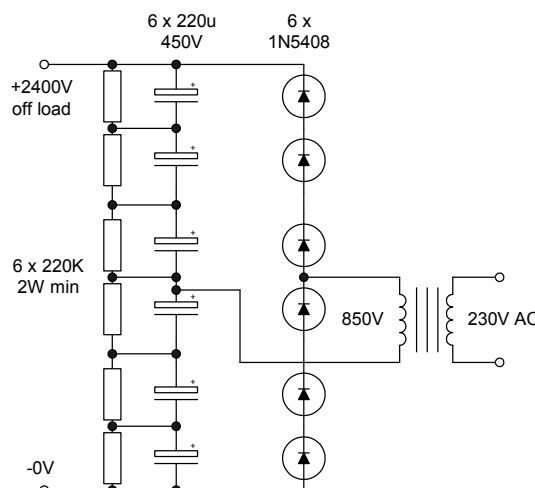
<http://www.bandconditions.com/>

<http://www.listenersguide.org.uk/swl/reception/>

## Members News

**a) Transformer** - having put the word out that I was in need of a high voltage transformer for a new linear amplifier nothing suitable was offered. I have now ordered and received a new bespoke toroidal transformer with a secondary voltage of 850V at a rating of 750VA (approximately 750 wats) from a UK supplier.

When used with a voltage doubling rectifier as shown this will produce 2400v DC offload and about 2000v





onload with a typical voice profile and a reasonably high value of smoothing capacitance to supply the current peaks. To minimise the switch-on inrush current while the electrolytic capacitors charge up an internal high power current limiting resistor is inserted in series with the mains supply to the transformer for a few seconds and automatically shorted out with a high current 240V AC relay. The resistor is typically a 25-100W metal clad wirewound resistor costing about £3 each. The resistance and power rating will depend on the power supply specification. See the technical web site for more information at:

<http://www.qsl.net/g3oou/surgelimiter.html>

The resistors across the electrolytic capacitors serve to equalise the voltage across each capacitor and as a discharge mechanism when the power supply is switched off.

When constructing any form of power supply I always reform the electrolytics, even if brand new, before using them.

With a typical amplifier efficiency of 40-45% in class AB1 this should enable an output power of around 300W to be obtained without overloading the transformer.

**WARNING!!!** Keep one hand in your pocket when working with these high voltages - they are **LETHAL** and there are **NO** second chances.

**b) Geoff Godfrey** has been experimenting with a hand held 144MHz receiver and rubber duck aerial to see how well he can hear the club net at his Sydenham QTH. Damien is audible but my signals are not, so an external vertical aerial is probably required.

**c) Storage** - I brought along to the January meeting an example of a simple hardwood plywood storage box that I had recently made to fit the shelves of my metal storage racks. Life is too short to spend hours searching for parts so I make a considerable effort to have my component stock in an easily retrievable format.

Tough conveniently sized cardboard boxes are difficult to obtain so I used some 5.5mm thick hardwood plywood, pinned and glued to make boxes about 7.5cm high x 27cm wide x 37cm deep which stack three deep on the metal shelves. They are finished with a rub down with sandpaper and a single coat of varnish to stabilise the wood surface and prevent splinters.

Raaco drawer units and dividers are ideal for very small items like resistors, capacitors and transistors. Quartz crystals are stored in frequency order in small 'lunch money' envelopes in old fashioned card filing boxes. The rest of my component stock is stored in cardboard or plywood boxes organised by type. My crystal bank of some 2,700 items has just been re-organised and will be shown on my web site in due course.

## Miscellaneous

**a) The 'typo gremlins'** crept into the last newsletter with three event date errors that have now been corrected - see the Dover Radio Rally, CATS

programme and the Intermediate training course commencing 25 Feb 2018.

**b) The March newsletter** will close for contributions on 15 Feb 2018.

**c) The new club web site** is now fully operational and receiving increasing numbers of visitors. The webmaster Nick can provide stats if required.

**d) Something different** - Cathy and I visited the Mithraeum under the Bloomberg building in London earlier this month. It is the remnants of a Roman building that was constructed about 200AD and the exhibition includes a collection of artifacts excavated from the site and an audio visual explanatory display.

**e) A Blast or Two from the Past** - this is a picture from our Spring Sale of 2006 with Sycom's stand in the foreground.



An early National Field Day entry, probably the early 1980s using an SB-101 transceiver and a Vibroplex manual bug key - shown left to right are John GOLMK (SK) and myself:



We were regular participants in both HF National Field Days and VHF Field Days.

## 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

### **a) 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
- 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

[g30ou\(at\)aol.com](mailto:g30ou(at)aol.com)

### **b) 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/g30ou/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

[g30ou\(at\)aol.com](mailto:g30ou(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 file. Prices are £1 each to club members and £2 each to non members, both plus P&P.

73



G300U

## Diary of External Events

### **04 Feb - 33<sup>rd</sup> Canvey Radio & Electronics Rally**

At the Paddocks Community Centre, Long Road, Canvey Island, Essex. SS8 0JA (The Paddocks is situated at the end of the A130). Opens 10:30 am. Admission £3, Amateur Radio and Electronic component exhibitors selling New and S/hand equipment. Freshly made refreshments: tea, coffee, a selection of sandwiches, and of course the famous 'Canvey Radio Rally' bacon rolls. Free car parking with space outside main doors for disabled visitors. Contact Vic Rogers G6BHE, on [Nvr1945@btinternet.com](mailto:Nvr1945@btinternet.com) or phone 07957461694.

### **11 Feb - Harwell Radio and Electronics Rally**

Didcot Leisure Centre, Mereland Road, Didcot, Oxon OX11 8AY (3 miles from Milton Interchange on A34). Open 10am to 3pm – entrance £3 (under 12s free). Free car parking with disabled parking and facilities. Traders, SIG, RSGB book stand, Refreshments, Talk in on 145.550MHz (G3PIA). Details Ann (G8NVI) on 01235 816379 or [ann.stevens@btinternet.com](mailto:ann.stevens@btinternet.com) or [www.g3pia.net/radio-electronics-rally](http://www.g3pia.net/radio-electronics-rally)

### **25 Feb - BRATS Medway Radio Rally**

The Victory Academy, Magpie Hall Road, Chatham, Kent ME4 5JB. Open 10am-2pm, disabled visitors 9.30am. Entrance £2.50. Free parking, talk in on 145.550 using GB4RRR. Trade stands, RSGB bookstall, Catering on site. Details from Hugh H, G0BRC on 0782 583 8877 or by email to [Secretary@bratsqth.org](mailto:Secretary@bratsqth.org)

### **11 Mar - Dover Radio Club Rally**

Whitfield Village Hall, Sandwich Road, Manley Close, Whitfield, Nr Dover CT163LY. Talk in, catering, trade stands. Open 10am, entry £2. Auction starts at 12.30pm. Aaron Coote, 2E0FQR, 0771 465 4267 or [aaroncoote@hotmail.co.uk](mailto:aaroncoote@hotmail.co.uk). [[www.darc.org.uk](http://www.darc.org.uk)].

### **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](mailto:info@radiofairs.co.uk). [[www.radiofairs.co.uk](http://www.radiofairs.co.uk)].

### **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](mailto:rally2018@cambridgerepeaters.net) [[www.cambridgerepeaters.net](http://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>

### **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](http://www.nadars.org.uk/rally.asp) On-site catering, disabled facilities. Contact: email: [NewburyRally@nadars.org.uk](mailto:NewburyRally@nadars.org.uk) [[www.nadars.org.uk](http://www.nadars.org.uk)]

## 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 G300U. 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.

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**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](mailto:secretary@brats-qth.org) or <http://www.brats-qth.org/brats/>

- 08 Feb Quiz Night
- 15 Feb Aviation in Medway
- 08 Mar From Hill to High Water: searching for vulnerable missing persons

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**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@bdars.co.uk](mailto:enquiries@bdars.co.uk). Web: [www.bdars.co.uk](http://www.bdars.co.uk)

- 19 Jun Direction Finding

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**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@g0mwt.org.uk](mailto:secretary@g0mwt.org.uk) Web: [www.g0mwt.org.uk](http://www.g0mwt.org.uk)

- 06 Feb A unique perspective by Keith Haynes G3WRO, RSGB Regional Manager
- 06 Mar Andy Tyler G1GKN will talk about using ex-military radios for amateur radio

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**Coulsdon Amateur Transmitting Society (CATS)**

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

- 12 Feb Pool Plant Operations and Filtration
- 12 Mar ??? By Bob Burns G300U

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**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@carc.org.uk](mailto:secretary@carc.org.uk) or Web: <http://www.carc.org.uk/>

- 28 Feb The History of the Magnetron from WWII Radar to the Kitchen by Mike, G3LHZ
- 28 Mar Space weather effects on HF propagation

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**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](http://www.cvrs.org)

- 01 Feb The History of the Transistor by Guy G0UKN
- 15 Feb Ian Burns G0AFH will give a talk on Surface Mount technology
- 05 Apr Heathkit Restoration by Bob Burns G300U

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**Dorking & District Radio Society**

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

- 27 Feb Practical evening - Making antenna traps by Tom Ellinor G4FDA
- 27 Mar One route through product design by Bob Burns G300U
- 24 Apr The future of amateur radio by Nick Henwood G3RWF
- 22 May Meteor scatter by Nick Read M5DND

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**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@btinternet.com](mailto:jho_g4gsc@btinternet.com) or 01784 451898.

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

- 25 Jan Video Evening - Tx Factor
- 26 Apr AGM

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**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@btinternet.com](mailto:sionet3344@btinternet.com)

[sionet3344@hotmail.co.uk](mailto:sionet3344@hotmail.co.uk)

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

- 28 Feb AGM followed by "Bring Your Mystery Thing"

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**Hereford Amateur Radio Society**

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

[enquiries@herefordradioclub.uk](mailto:enquiries@herefordradioclub.uk) or

<http://herefordradioclub.uk/>

- 02 Feb 6cm transmissions by Matt (G8XYJ)
- 02 Mar Annual General Meeting

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**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@hotmail.com](mailto:g3zbu@hotmail.com) or

<http://www.harc.org.uk/>

- 01 Feb FPGA Programmable Logic - G3ZBU
- 01 Mar Junk Sale
- 05 Apr Breakfast Machine - Mervyn 2E0WVE
- 03 May High Power Small Transmitting Loops – the secret is two parallel turns! - Mike Underhill G3LHZ

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**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 or [www.msars.org.uk](http://www.msars.org.uk)

- 02 Feb Health and Safety etc by David Davis
- 09 Mar Computer Logging by Phil G4UDU

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**South East Essex Amateur Radio Society (SEARS)**

Contact Mark Callow 2E0RMT on 07842 336444 or [secretary@southessex-ars.co.uk](mailto:secretary@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.

- 13 Feb Dave Cutts "Data Modes"
- 13 Mar "Log40M software" by Terry Genes G4POP
- 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

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**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@g3src.org.uk](mailto:secretary@g3src.org.uk). Web: <http://g3src.org.uk/>

- 05 Feb Have Computers Killed Off Amateur Radio?
- 23 Feb SRCC Dinner

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**Sutton & Cheam Radio Society**

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



15 Feb Accessing Weather Satellites by Paul Kenny – 2E0PCK  
 15 Mar Op-amps by Bob G30OU  
 19 Apr BITX40 by Martin Butler – M1MRB  
 17 May AGM & Construction Contest

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.

**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,

<b>Annual General Meeting - Agenda</b>		<b>8pm</b>	<b>2nd February 2018</b>
1.	Apologies for absence:		
2.	Minutes of 2017 AGM		
3.	Chairman's Report		
4.	Secretary's Report		
5.	Treasurer's Report		
6.	Changes to Constitution		
7.	Elections of Officers and Committee Members		
8.	Appointment of Auditor		
9.	Club Programme		
10.	Palace Pulse Newsletter		
11.	Any Other Business		

<b>Local Training Courses</b>					
<b>Licence Level</b>	<b>Dates</b>	<b>Location</b>	<b>Club Provider</b>	<b>Format</b>	<b>Further details</b>
<b>Advanced Examination only</b>	27 Jan 2018	Eltham, SE9	Cray Valley RS	Saturday morning	<a href="http://www.cvrs.org">www.cvrs.org</a>
<b>Foundation</b>	03 & 10 Feb 2018	Eltham, SE9	Cray Valley RS	2 days (Sat)	<a href="http://www.cvrs.org">www.cvrs.org</a>
<b>Intermediate</b>	25 Feb, 11, 18 Mar 2018	Bromley	Bromley & District ARS	3 days (Sunday)	<a href="http://www.bdars.org">www.bdars.org</a>
<b>Foundation</b>	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	<a href="http://www.darenthvalleys.org/training">www.darenthvalleys.org/training</a>
<b>Foundation</b>	07 and 21 Oct	Bromley	Bromley & District ARS	2 days (Sun)	<a href="http://www.bdars.org">www.bdars.org</a>
<b>Intermediate</b>	Nov 2018 dates TBC	Eltham, SE9	Cray Valley RS	3 days (Sat)	<a href="http://www.cvrs.org">www.cvrs.org</a>
<b>Intermediate</b>	Feb & Mar 2019 TBC	Bromley	Bromley & District ARS	3 days (Sun)	<a href="http://www.bdars.org">www.bdars.org</a>
	= course commenced				

<b>CPREC Committee Contact Information</b>		
<b>Officers:</b>		
<b>Chairman:</b> Damien Nolan 2E0EUI 7 Fonthill Court Honor Oak Road London SE23 3SJ 07900 242541 <a href="mailto:Gorby928(at)gmail.com">Gorby928(at)gmail.com</a>	<b>Secretary:</b> Alan O'Donovan G8NKM 2 Mackenzie Road Beckenham Kent BR3 4RU 020 8778 9660 <a href="mailto:Alan.odonovan(at)btinternet.com">Alan.odonovan(at)btinternet.com</a>	<b>Treasurer:</b> Ian Skeggs M6FZC Ground Floor Flat, 24 Kendall Road Beckenham Kent BR3 4PZ 020 8650 9049 <a href="mailto:ian.skeggs(at)btinternet.com">ian.skeggs(at)btinternet.com</a>
<b>Committee Members:</b> Bob Burns G30OU Nick Stapley	Newsletter Editor	01737 552170 or G30OU(at)AOL.COM