CPREC   G2LW

Palace Pulse

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:	cprec.g2lw@gmail.com	
Club Net:	Each Wednesday at 20:00 on FM on 145.525MHz (S21) ± QRM	
	Experimental net each Saturday at 20:00 on FM on 51.55MHz	
Twitter	@BobFBurns or www.twitter.com/bobfburns	

Next meeting: Friday 4th October 2019

Emergency Service Communications by Steve Storey G3ZPS

In this issue: *Future Meetings & Events, Recent Event News, From Tape to Jigsaws by Nick Stapley, Technical Snippets, Members News, Miscellaneous, Noticeboard, Diary of External Events, News from other Clubs, Local Training Courses and Club Contact Information.*

See the last page for club contact information

Dear Reader

<u>**Future 2019 Club Meetings and Events**</u>

04 Oct	M	Emergency Service Communications by Steve Shorey G3ZPS
01 Nov	M	The Gliwice Radio Tower Incident by Phil Tate M1GWZ
24 Nov	E	CATS Bazaar
06 Dec	M	Christmas Social
03 Jan 20	M	Video Evening
07 Feb 20	M	Annual General Meeting

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

<u>**04 Oct 2019 - Emergency Service Communications by Steve Shorey G3ZPS**</u>

'999 Emergency' is a light hearted look at Public Safety Communications through the ages and into the future. Steve G3ZPS spent almost his entire working life involved in the radio communications business including over 30 years in the Metropolitan Police as a Senior Radio Systems Engineer. Steve is a Fellow of the IET and was a key player in re-engineering the Met's ageing radio systems in the 80s and 90s. In the last three years he has given this talk to over 15 Amateur Radio clubs across the South East.

<u>**Recent Event News**</u>

<u>**06 Sep 2019 - How to Specify a Power Transformer by Paul Dyer M6OPY**</u>

Paul presented an illustrated talk on mains transformers and commenced with an overview of of UK Power Networks the distribution company serving the South East of the UK.

UK Power Networks is a distribution network operator for electricity covering South East England, the East of England and London. It manages three licensed distribution networks (Eastern Power Networks PLC, South Eastern Power Networks PLC and London Power Networks PLC) which together cover an area of 30000 square kilometres and approximately 8 million customers, distributing typically 89TW/hours per year.

UK Power Networks maintains the electricity networks including the lines, electricity cables and transformers in the form of 47km of overhead cables, 134km of underground lines, 6,000 staff and 3,000 contractors. The distribution system transforms from 132KV to 32KV, 32KV to 11KV and then several more voltage reduction stages to get to 415V three phase and 230V single phase for customers premises.

The distribution system is complicated by the need to cater for the increasing number of premises that now generate their own electricity from wind or solar and supply any excess energy back to the grid.

Transformers vary in size from 'very large' to 'enormous', weighing many tons and are subject to rigorous specifications including minimum lifetimes, easy maintainability and overload capabilities of up to 160%

for two hours - the basic specification is EDS04-8000. For example, a 7.5MVA (mega volt amp) transformer may be required to run at 15MVA for up to two hours at a maximum temperature of 140°C without failure.

These transformers are manufactured in a number of European countries including Slovenia, Portugal and Sweden so language can be a problem. The internationally agreed solution was to adopt English and French as the two standard languages.

Some of the important criteria are Safety, Reliability, Operational lifetimes of 25 years minimum, Voltage ratio, Impedance, Losses, Monitoring, Cooling oil and of course 'will it fit?'. Suppliers must be ISO-9000 registered.

With these required lifetimes, the materials used in transformer construction become extremely critical. For example:

- the paper used for insulation can degrade with temperature and acidity so the oil must be analysed to determine progress towards end of life

- Bushings (insulators) can fail and fragment up to 80m in distance

- Monitoring is complex and expensive. SCADA uses two different cable routes or one cable and one satellite link to minimise the risks of communication failures

- Large transformers are an expensive problem to transport and require route surveys, movement licences, possible road closures and special site access.

Old transformers would often last up to 70 years but modern (lower) cost requirements have reduced this to some 25 years.

Transformer construction typically uses paper insulated aluminium foil for low voltage windings and enamelled copper wire for high voltage windings. Oil is used for cooling with external pipes, fins and/or forced air to dissipate the heat. Fibre optics are used for temperature monitoring as they are non-conductive to electricity.

Street transformers are often housed in small buildings disguised with advertising panels. Some transformers are so large that they are fitted in place, typically in a basement, and the building is then erected around them.

<u>**From Tape to Jigsaws by Nick Stapley**</u>

Theorist forgot to write an article this month so the editor has asked me to fill in for him. He was planning an exhaustive article on relativistic quantum mechanics which nobody would understand (including himself?) so you may well be relieved to get something more mundane. Anyway, the first computer programme I wrote was in BASIC, the introductory language of choice in the 1970s, in my case, 1973. I typed the programme into a terminal that looked like a small television, and pressed a button to 'print' it out in encoded form on a long paper tape. There was no ability to store the programme on the machine, at least for me as a beginner.

The tape was rolled up and an elastic band put round it, and put into an envelope with my name on it. I put it in a box along with lots of other people's envelopes in the

computer room and went away. The next day the tape roll came back with some print-out pointing out where the programme had crashed due to an error in the code. This meant feeding the tape roll back into a terminal, correcting the programme, printing out ta new tape and resubmitting the job, waiting another five or six hours (or overnight) for the results. I should say of course that the computers were all mainframes designed to cope with multiple users.

Things improved when a new ICL machine was installed. Programmes were now typed out on a punched card machine made by IBM. An elastic band was put round a batch of cards for small programmes, or in a special box for larger programmes, and then submitted much as before. It could still take a long time for results to come back.

By 1976 I was writing code in FORTRAN, a much derided language now but the only 'proper' computer language in which I was ever truly competent, fluent even. The machine was now an IBM with a magnificent 126kB of RAM! It occupied a whole room in the computer building (think old movies with big reels of tape going back and forth) and one exceptionally cold winter it had to be shut down due to overheating – the external cooling fins had iced up. The situation had improved in that programmes could now be stored online and run and edited while-you-wait if they were small enough. There was even an editor of sorts, but not a full development environment of the sort you would expect now for a computer language.

As an aside, part of the supposed problems with FORTRAN were that they allowed spaghetti-like code, primarily with the use of the 'backwards GOTO' statement. In FORTRAN the first six spaces of a line were reserved for giving a number to a line if desired. Most lines of code did not need a number, but if you did number a line you could transfer control to that line if (for example) some particular condition was met. For example a line such as IF (condition is true) GOTO 120 meant that control would be passed to line 120 if the condition was met, and that line would be the next line of code executed. This line could be anywhere in the subroutine you had written, including somewhere further up the page, hence the term 'backwards GOTO'. This made if difficult for somebody else to follow what you had written if they had to debug or modify your code at a later date. Excessive use of this did indeed result in spaghetti code.

I used the first personal computer around this time too, in 1978. It was the Commodore PET in 1978. This had 8k of ROM and used a version of BASIC. As the photo shows there was a cassette tape player on the left where you stored your programmes on a standard audio cassette, and a small black and white CRT display. The keyboard layout was

much the same as you will find on a keyboard today, but with a few special keys. It had basic graphics including the ability to display special symbols, including the suits for playing cards, opening the possibility of computer games. It was surprisingly good, and it dawned on me that it might well one day be possible for everybody to own and use a computer if they wanted one, although exactly why they would was not clear, other than perhaps to play games.

Computers continued to improve and become smaller and more powerful, but for PCs the years from 1998 – 2000 were when a PC became the 'must have' item for the general public, especially around the Christmas period with most manufacturers offering a machine around the £1,000 mark, which would get you something like a 500 MHz processor, 128MB of RAM and an 8GB HDD running Windows 98SE, and a CD and floppy disk drive as well. Most readers will be aware of developments since then and own at least one computer of some sort or another, so I won't continue along this line.

I have dabbled with Python recently, an increasingly popular and good language, and for which there are several good development environments. These indent/unindent code for you as you write it, perhaps colouring statements by type, even performing some basic error checking as you go. The trouble is that it is difficult to learn a programming language without some specific objective in mind. You need an incentive to maintain enthusiasm – some long term goal.

Even more recently I got interested in how 'apps' are developed for Android phones, with a specific object in mind. I thought about using Python and investigated how and if this could be done. Fortunately at this point I stumbled across a brilliant tool called MIT App Inventor 2, the like of which I have not seen before. As its name suggests it was developed by the Massachusetts Institute of Technology and enables a user to develop applications for Android using just a web browser. The most significant feature though is the highly unusual development environment (which runs in the browser) in which a programme/application is constructed using 'drag and drop' jigsaw pieces. No code as such is ever written since once the programme has been designed a
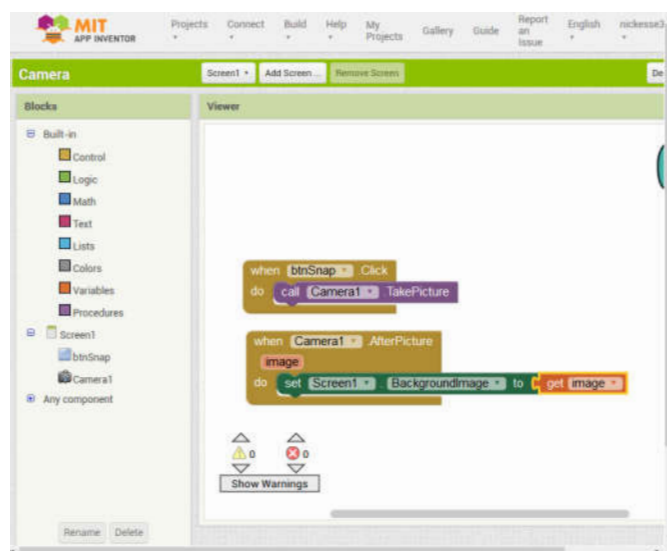
simple click produces code (or rather a package) that can be installed on a phone or other Android device. As far as I can tell it has the full range of options that will enable you to produce anything that you can get from the Android app store, using any functionality that your Android device has.

As one example the first picture (end of previous page) shows a screen shot of the development environment with part of an app that uses the camera on your phone. The other two shots show the 'jigsaw' nature of the app
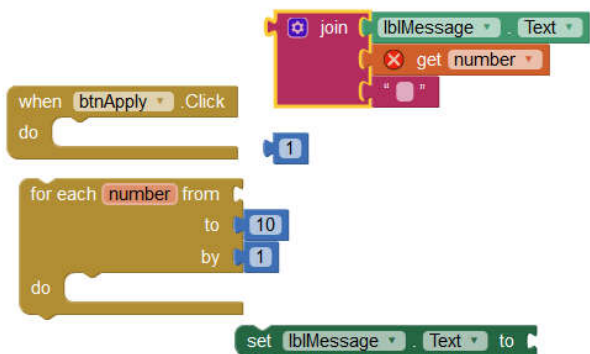
with a simple loop from 1 to 10 (incrementing by 1) assembled and partially disassembled. Note how the outer 'when btnApply' piece expands when a larger block
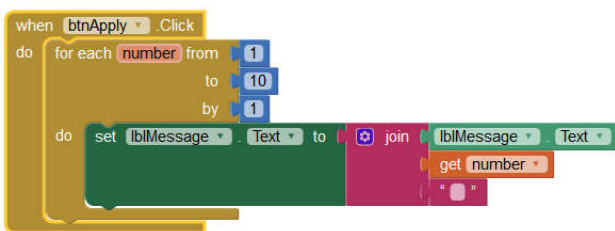
of code is inserted.

There are versions of the MIT package for Linux and Mac, as well as Windows devices, but the browser must be an up-to-date version of either Google Chrome, Firefox or (for Apple users) Safari.   To get started go to https://appinventor.mit.edu and sign in with an email account. You may wish to use a separate email account rather than your main one. It really is brilliant.

Club News

a) CATS Bazaar on 24th November:

We have booked two tables with mains power for this event and need some on-site assistance from 10:00 - 14:00. Please contact a committee member and let them know how you can help.

Members News

a) Some club history: Since I joined this club in 1957 I have seen a considerable number of events and changes including:

- All Saints Church is the third club meeting location - the first was Windemere House, behind Sainsburys but now demolished, to one side of Westow Street in Upper Norwood followed by a church on the Dulwich/Sydenham border

- October 2019 is the 27th anniversary of my taking over as newsletter editor - my first attempt was number 443 and this one is number 768 - a total of 325 newsletters. Before that the previous editor, Geoff G3FZL, had produced a monthly newsletter for almost all of his tenure as Hon Secretary, a period of some 40 years. Over that time the newsletter has expanded from one side produced on a duplicating machine to eight sides laser printed and now regularly includes photos and technical drawings

- Our club has produced two presidents of the RSGB - Geoff G3FZL and Eric G3IIR

- We have taken part in a considerable number of HF and VHF field days at various locations including Crystal Palace, Isle of Sheppey and two sites in the Wrotham area

- I well remember early AGMs being well attended and full of "Mr Chairman...this" And "Points of order...that".

Technical Snippetts

a) Building a simple vertical Antenna by Damien 2E0EUI

I have been considering building a simple vertical antenna for HF for some time and decided to take the plunge this summer while at the Wimbledon summer camp.

I wanted something that would be easy to use and transportable for mobile operation etc.

I looked through my antenna design books and online of course but in the end I decided to go with a helical wound vertical type design. One of the reasons I decided on a helical design was because I wanted to use a telescopic fibreglass pole as my mast and I wanted to reduce any possible strain on the mast when fully extended.

There are quite a few choices when it comes to telescopic style masts but in the end I decided to opt for a 10m mast from Sotabeams.

My reason for choosing a 10m length was because I wanted to try and make a ½ wave helical vertical for the 40m band.

Collapsed mast and Antenna wire:

I cut the main vertical wire at just over 20m long to allow for tuning and with my Shark 100 analyser I was able to get the SWR down to about 2.6:1.

I then added 4 radials at around 33 foot which then bought the SWR done to a respectable 1:1 at 7.000MHz (40m).

It was then time to try it out and see if my masterpiece worked. I evenly wound the vertical wire around the mast

as I erected each section until all 10m of the mast was up and then evenly spread out the the 4 radials.

The band conditions where not ideal the afternoon I tested the antenna on 40m, oh and did I mention I was testing this QRP my trusty Yaesu FT817 at 5w output using an external 12v 7.2amp battery.

Like I said conditions weren't great the afternoon I tested my setup with large storms rolling across Europe. But with a little patience and some perseverance I got a result and not a bad one all things considered.

I managed a QSO with OK1APB, Lubos in the Czech Republic (shown on the map) with a 5/8 report through the storms which I was more than pleased with and just shows you what you can achieve with 5w and a bit of wire :-).

A sketch of this aerial is shown below:

I have to say that I am more than pleased with my first homebrew vertical and urge anyone who is thinking of having a go just to do it. Its a lot cheaper than buying a commercial antenna and great fun when you have success.
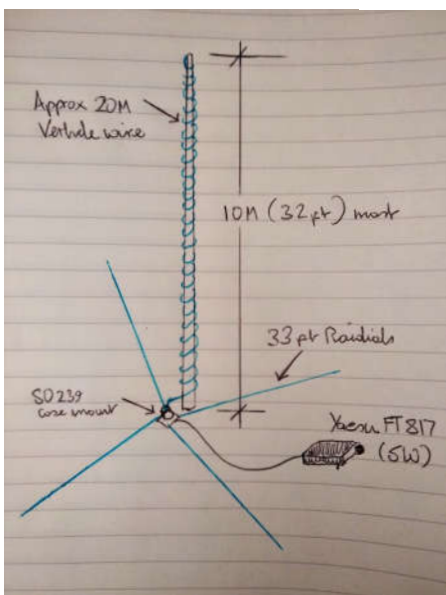
73 Damien
2E0EUI

[For constructors interested in a permanent installation of this aerial a weather proof base insulator, corrosion proof metal ground plate connector and a waterproof coaxial connector will be required - Ed.]

b) LDMOS Transistors - NXP have introduced some new and interesting LDMOS (FET) transmitting devices. Two are relatively low cost devices - the MRF101 (£18+VAT) and MRF300 (£30+VAT) are both 50V rated devices in TO-220 cases with a suggested frequency range of 1.8 - 250MHz.

The MRF101 is specified with a CW output power of 100W at 40.68MHz, a 50V supply and a gain of 26dB. The MRF300 is specified with a CW output power of 320W at 40.68MHz and 50V supply with a gain of 28dB.

Both of these devices are supplied in 'A' and 'B' formats, one with the gate and drain reversed compared to the other so they are ideal for push-pull amplifiers. In principle, two MRF300 devices would easily produce the maximum UK licence power of 400W with less than 4W of drive.

The other device, the MRF1K50H is a dual FET at the opposite end of the power spectrum with an output power of 1.55KW at 27MHz, a supply of 50V DC and a gain of 25.9dB.

The specifications state no failure at an SWR of 65:1 at full output power so If run on a slightly lower 40V DC supply these devices are likely to be indestructible. Attention must be paid to heat transfer and heat-sink design to ensure that the devices are run within their safe operating area.

c) Drake TR-7: While working on the TR-7 units I took a top view photo with the outer case removed as shown over the page. The area of greatest difficulty is the collection of vertical PC boards located underneath the counter control board which is just behind the front panel. These PCBs plug into the underside of the control board and are difficult to align with their respective sockets.

The transmitter power amplifier and its heatsink are located on the right hand side and the internal loudspeaker on the left hand side. The PCBs at the back
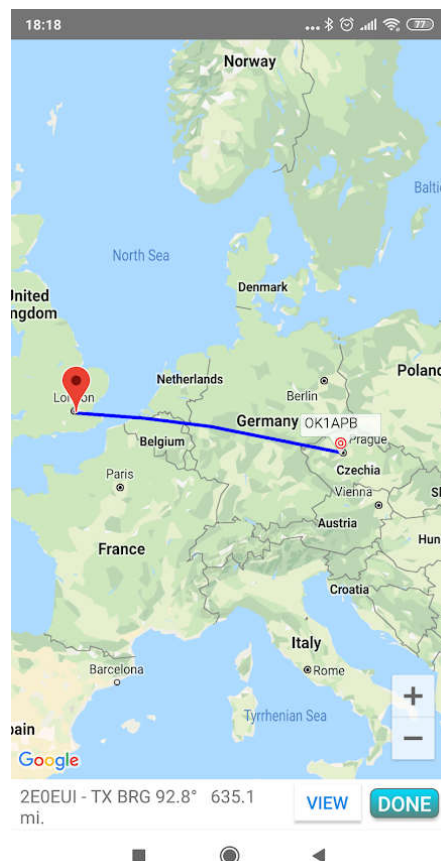
are easy to remove and replace but require an extender to access them while powered up.
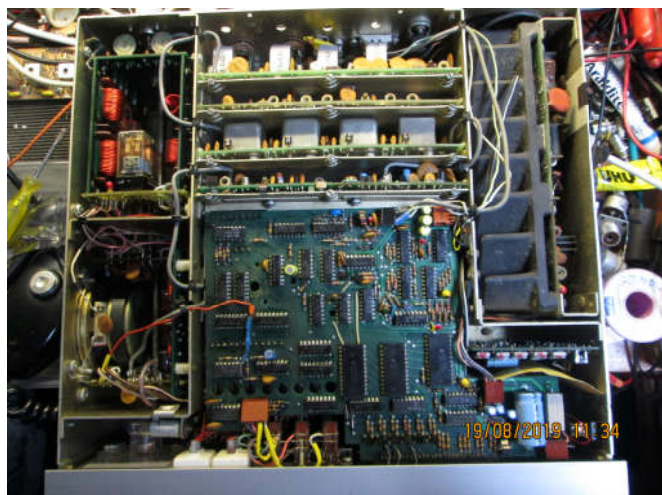
Miscellaneous

a) London Museum of Water & Steam - Cathy and I visited this museum recently and were most impressed with the displays. The museum started out in 1838 as a steam driven pumping station and ceased operation in 1944. Most of the original (and large) steam engines and pumps are still in place and at least one is fired up once a week for demonstration.

Water and Steam related topics are in two separate sections of the building with many working small models on display (mainly for children) and a narrow guage steam railway outside. There is a restaurant serving hot and cold snacks and drinks.

See https://waterandsteam.org.uk/ for more information.

b) Museum Exhibits: During a recent week spent in Dorset Cathy and I visited the Solent & Sky Museum in Southampton which has a wide variety of exhibits from early propeller aircraft including a full size passenger flying boat to early jets. The exhibits also included examples of propeller and jet engines, personal histories of local heroes and ancilliary equipment.

Two items were of particular interest shown to the right:

- The first one was an 1154 transmitter and 1155 receiver used during WWII in Lancaster bombers and other (larger) planes.

- The second one was a working model of the shutter signalling system covered in a talk by club member Jim M0JFL.

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) Two AVO 8 Mk VI test meters: One has a broken terminal the other is fine. Both working but no leather carrying cases. £55 each ono. Contact Noel Brown on 0208 761 5883.

b) Fujitsu-Siemens Amilo Pro Laptop running Windows XP Pro, Intel dual core 1.7GHz, 1GB RAM, 15inch LCD, USB, CD/DVD, no diskette, battery charger, carrying case, AVG, Office97 and assorted utilities, £35.

Dell Latitude D810 Laptop with charger & spare battery, CD/DVD, no diskette, USB ports, WiFi, serial & VGA ports. Ubuntu Linux and Libre Office installed, £25.

Desktop PC with 2.8GHz quad core AMD processor, 4GB of RAM, 1TB and 0.5TB hard drives, CD/DVD RW drive, BluRay BD-RE (25GB) drive, Windows 7 pro 64bit OS, digital FM/TV card, dual monitor graphics, Ethernet port, 6 USB, parallel/serial, 3.5inch diskette drive & all driver software. No mouse, keyboard or monitor. £50

D-Link DSL-3680 N150 ADSL+ Wireless router with two Ethernet ports and mains PSU, £10.

Contact Bob on 01737 552170 or g3oou(at)aol.com.

c) CPREC has a large bank of fundamental and overtone quartz crystals, from 1.0 – 99.91MHz and the list is on the club website as a downloadable PDF file. Prices are £1 each to club members and £2 each to non members, excluding P&P. Contact Bob on 01737 552170 or g3oou(at)aol.com.

73

G3OOU

Diary of External Events

27-28 Sep 2019 - 11th National Hamfest
Newark & Nottinghamshire Showground, Lincoln Road, Winthorpe, Newark, Nottinghamshire NG24 2NY. Free parking. Nearest rail station is Newark where taxis are available. For more information including the flea market, bring & buy and trader list see:

http://www.nationalhamfest.org.uk/

11-13 Oct 2019 - RSGB Convention
Kent's Hill Park Training and Conference Centre, Swallow House, Timbold Drive, Kent's Hill Park, Milton Keynes, Buckinghamshire MK7 6BZ.

19 Oct 2019 - CW Convention and CW Boot Camp
3rd Witham Scout & Guide HQ, Rear of Spring Lodge Community Centre, Powers Hall End, Witham, Essex

CM8 2HE. Registration at 8.30am, start 9am. Finish at around 4.30pm. Pre-register as places are limited to G0IBN: g0ibn1@yahoo.com or 0745 342 60 87 Previous events have welcomed visitors from all over the UK.

24 Nov 2019 - CATS Bazaar
The 2019 bazaar (the 42nd) will take place on Sunday 24th November 2019 at the Oasis Academy, Homefield Road, Old Coulsdon, Surrey CR5 1ES. Features include: secondhand equipment, flea market, traders' stalls, new equipment, refreshments, disabled access / toilet, free parking. Admission £1.50 includes a free cup of tea or coffee and entry to the prize draw. Three bus routes: 466, 404 and 60. Doors open 10:00 hrs and expected to finish at around 13:00. More information from bazaar@catsradio.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 endeavor to do so if advised in time. **If we are regularly unable to obtain the information then that club entry will be removed from this newsletter.**

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/
| 26 Sep | The GB3VHF and GB3UHF Story by Chris G0FDZ |

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. Web: www.bdars.co.uk
15 Oct	DMR Hotspots - An Introduction by Damien 2E0EUI
19 Nov	The 'Nicky' TRF by M0YRG
17 Dec	Quiz and Mince Pies

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 Web: www.g0mwt.org.uk
01 Oct	CARS AGM
05 Nov	LF + WSPR by Andy G1GKN (TBC)
03 Dec	MicePies, Quiz and a short talk

Coulsdon Amateur Transmitting Society (CATS)
8:15pm on 2nd Monday each month. Contact: Andy Briers G0KZT on 07729 866600 or secretary(at)catsradio.org. Web site: http://www.catsradio.org/
| 14 Oct | Vintage Wireless Museum in Dulwich |

04 Nov	Inter club quiz
24 Nov	CATS Bazaar
09 Dec	CATS AGM

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 or Web: http://www.carc.org.uk/
25 Sep	Plastics in Amateur Radio
23 Oct	The History of the Magnetron from WW2 Radar to the Kitchen and beyond, by Professor Mike Underhill G3LHZ
13 Nov	Coax and Connectors the forgotten ingredients of a high performance VHF/UHF Station. by Alwyn Seeds G8DOH
06 Dec	Annual Fish & Chip Supper

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 .Web www.cvrs.org
3 Oct	Annual Surplus equipment and 'Junk' sale
17 Oct	i) N1MM contest logging software
	ii) RSGB HF contest adjudication process: Quin G3WRR
19/20 Oct	Jamboree on the Air and JoTI – Club Shack: Guy G0UKN

Dorking & District Radio Society
Meetings at 7.45pm. Contact: David Browning (M6DJB) at djb.abraxas(at)btinternet.com. Web site: http://www.ddrs.org.uk
22 Oct	Hermes Lite SDR by Alan Hopper
26 Nov	AGM & film
13 Dec	Christmas Dinner

Echelford Amateur Radio Society
Meetings on 2nd and 4th Wednesdays of each month at new venue: St. Hilda's Church Hall, Stanwell Road, Ashford, TW15 3QL. Enquiries to Phil at m1gwz(at)icloud(dot)com. Web site: http://www.qsl.net/g3ues/index.htm
09 Oct	Aerials, Feeders and ATUs by Bob G3OOU
13 Nov	TX Factor - Episode 23
11 Dec	Christmas Party

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 Web: http://herc-hastings.org.uk/
25 Sep	Photos Presentation by Alan Harding
23 Oct	TBA
27 Nov	Video Presentation
December	No 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 or http://www.harc.org.uk/
| 03 Oct | Junk Sale |
| 07 Nov | The World at my fingertips - David 2E0NKC |

05 Dec   AGM

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

04 Oct	Talk by Chris Saunders
18 Oct	Video Night - Radio Caroline Evening
01 Nov	Surplus Equipment Sale
15 Nov	Q Code Practice
29 Nov	Christmas Dinner
20 Dec	Christmas Quiz - Sue G6YPY

North Kent Radio Society

Meets at the Hurst Community Centre, Room 15, Hurst Place, Bexley, Kent, DA5 3LH. Doors open at 8PM. More information from Stephen G8JZT on secretary@nkrs.info or 07985 753370 evenings or weekends.
Web: http://www.nkrs.org.uk/

15 Oct	AGM
05 Nov	Florida Part 2 by Dave
19 Nov	AOR AR-DV1 by Ian
17 Dec	Christmas EGM

South East Essex Amateur Radio Society (SEARS)

Contact Mark Callow 2E0RMT on 07842 336444 or 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.

08 Oct	Dave Taz M0TAZ "RSGB Operating Advisory Service"
12 Nov	AGM
10 Dec	Christmas Social

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. Web: http://g3src.org.uk/

07 Oct	Autumn Surplus Equipment Sale
04 Nov	Inter-Club Quiz: SRCC / CATS / S&CRS
02 Dec	Construction Contest
16 Dec	Pre-Christmas Social

Sutton & Cheam Radio Society

8pm on 3rd Thursday every month. Contact Chris Howard at info(at)scrs.org.uk Web: http://scrs.org.uk/. SCRS run a practical group most Monday evenings at the Bandstead Scout Hut.

17 Oct	HMS Belfast Radio Volunteers, Jorgen Faxholm, M0AXP
21 Nov	Receiving Es'hail2 by Paul Kenny 2E0PCK
12 Dec	Christmas social and friendly quiz

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

Palace Pulse is published ten days before each meeting and closes for contributions five days before the publication date. Please send contributions to the newsletter editor shown below.

Local Training Courses

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

Licence Level	Dates	Location	Club Provider	Format	Further details
Please note that a new syllabus will apply for all exams from July 2019.					
Foundation	22 Sep - 6 Oct	Bromley BR2 7NH	Bromley & District ARS	2 days (Sun)	www.bdars.org
Full	07 Oct - 30 Nov	Eltham, SE9 2SD	Cray Valley RS	TBA	www.cvrs.org
Foundation	1 & 8 Feb 2020	Eltham, SE9 2SD	Cray Valley	Two Saturdays	www.cvrs.org
Intermediate	Feb or Mar 2020 - TBC	Bromley BR2 7NH	Bromley & District ARS	Three Sundays	www.bdars.org
Intermediate	14, 21, 28 November 2020	Eltham, SE9 2SD	Cray Valley	Three Saturdays	www.cvrs.org
	= course commenced				

CPREC Committee Information

Officers:		
Chairman:	**Secretary:**	**Treasurer:**
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