

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 7th June 2019

On Air HF Noise Reduction Systems by John G8MNY

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

Dear Reader

Future 2019 Club Meetings and Events

07 Jun	M	On Air HF Noise Reduction Systems by John G8MNY
05 Jul	M	Railway Semaphores – Jim M0JFL
02 Aug	M	Summer Social and On the Air
06 Sep	M	Power Systems – Paul Dyer - TBC
04 Oct	M	Practical Fault Finding – Martin Butler - TBC
01 Nov		TBA
06 Dec	M	Christmas Social

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

07 Jun 2019 - On Air Noise Reduction Systems by John G8MNY

At this meeting John is going to give an illustrated talk about noise reduction systems and will cover the following topics:

- What is it?
- Where does it come from?
- Protecting Receivers from Noise
- RF Noise Cancelling
- Rx Noise Blanking
- IF/AF Noise Ignoring DSP
- Designing a low noise QTH
- Noise toleration

Noise, particularly on the HF bands is a universal problem, originating from a variety of sources including switching power supplies, solar panels, high efficiency lights, broadband and many others. Tracking it down and getting the problem resolved can be extremely difficult.

Recent Event News

03 May 2019 - CW Evening and Pixie Test and Maintenance

Andrew G4ADM commenced construction of his Pixie during this evening as shown to the right ably assisted by our Treasurer Ian.

It is recommended that the Pixie be run from a 9v battery which may be a dry or rechargeable type. At this supply level the transmitter output is estimated to be about 800mW. With sensitive headphones the receiver



sensitivity is about 10uV which is adequate for the 7MHz band.

A completed Pixie transceiver is shown above with its battery and a separate loudspeaker:

And of course, while the workers beaver away, here is the 'committee' putting the world to rights:



Mills on the Air – 11th and 12th May at Keston Mill

On Saturday a number of us set up a radio station in Keston mill. The mill was built in 1716 and is a grade 1 listed structure, details of which can be found on Wikipedia. The mill is situated on a high point about 430 feet ASL and proved to be a good site for VHF operations.

We set up both HF and VHF stations using mostly club equipment. The 2m VHF station used a co-linear placed within the mill at the top of the structure and we connected this to the club's Trio TR-9130. The HF setup used an 80m dipole with one end connected to a tree and the other supported by one of the clubs masts, the mast being set up in adjacent field to the windmill. We used the club's Yaesu FT-950 via an ATU. The FT950 is a complicated beast and none of the members present were too competent in its operation, however we did make some contacts with it. On Saturday it was swapped out for Bob's Icom IC7400 and on Sunday we used Jim's Yaesu FT-450D.

Saturday was rather rainy and chilly but was the better day for contacts with 44 contacts made on VHF including

contacts with Thaxted NE of Stansted Airport, Heathrow to the West and Canvey Island to the East. On Sunday VHF contacts were a lot less with only 15 being made. For some reason the 2m band was a lot quieter although Steve (M0PEL) had a QSO with Bob on both 2 and 6 meters.

Working mainly 80 and 40 meters on Saturday we worked 22 contacts most notably DF4JG who was mobile in Dresden (40m SSB) and EI2NCR in Skerries, West coast of Ireland north of Dublin (40m SSB). A few CW contacts were made on 40m, 30m and 17m with Italy, Germany and Bulgaria and one beacon was heard on 10m. On Sunday the bands were very poor with most contacts being made on 80m although a few were made on 40, even then the QRM was pretty bad with only 14 contacts being made in total. The most notable contact was a water mill in Somerset on 40m contacted late in the afternoon.

We closed the stations at 4pm on Sunday and packed up all the gear. A special thanks goes to Steve (M0PEL) who braved the weather on both Saturday and Sunday, Gareth (G4XAT) who came along to set up and take down and Kim G6JXA who operated VHF on both days.

The picture below shows Andrew and Alan operating the HF station.



The mill and its roundhouse are shown below with the HF aerial running just to the right:



Mike M1CCF very kindly brought his fitted out ex-military vehicle to site for visitors to inspect.



Alan G8NKM

Members News

a) Changing the shack PC by Damien 2E0EUI

Hi all, the time has come where I have to upgrade the shack PC. I was thinking about doing this for some time now due to some slow downs etc. but then a friend of mine G0UJA had some refurbished Dell PCs going at a reasonable price so I took the plunge.



This wasn't a massive leap up in hardware as I have moved from a i3 based PC to an i5 based PC and added a little more storage in the form of a 1TB SSD (solid state)



drive). This would be more than enough to run my radio software and a bit of eBay browsing,

I have also decided to go for a dual monitor setup for the first time and I have to say it was the right move (even if it does confuse the XYL :-)).

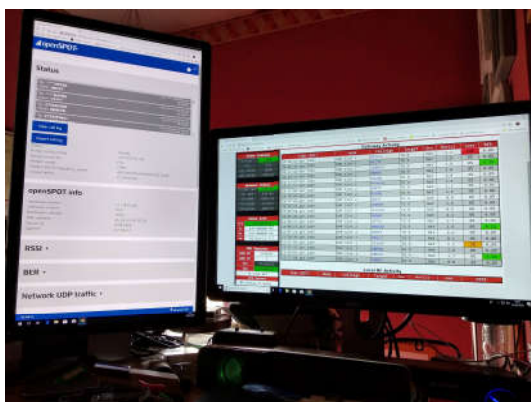
This was also my chance to migrate from my good old Windows 7 to Windows 10. I have to say the whole deal was made easier by using a USB2 Data Link Cable which allowed me to drag and drop files from one PC to the other making moving my files a breeze.

Below are some more photos of me using this setup to monitor SolarHam and my WSPR spots and also monitoring my digital radio dashboards :-)

SolarHam and WSPR.org:



Openspot dashboard and Pi-Star dashboard:



b) Oscar 100 Satellite - Work in Progress - Gareth G4XAT

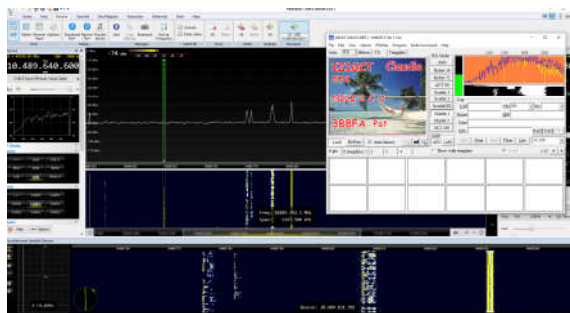
LNB choice is worth researching too – as designed many lose gain below 10.7 GHz and if DRO based, drift like something that drifts a lot, so unsuitable for NB operation. Octagon make PLL units which lend themselves to a variety of adaptations such as replacing the crystal with a TXCO or GPS locking. Info on all this is on the BATC forum/Wiki pages but does take some digging out. UK stock is seriously depleted at the moment (BATC members having cleaned out the stock!), but that will change in time. They are available as single, dual and quad outputs, just make sure you buy the ones with PLL's.

Various solutions for TX exist, depending on NB or DATV requirements but a combined 'patch' feed around a LNB seemed a sensible solution – only one thing to align. I had suitable copper sheet so machined up the required parts and using some 22mm copper and a

compression fitting I have a Tx/Rx solution on a single dish.

As the LNB puts out a whopping signal I feed this to a passive 4-way splitter and by adding a bias-tee can feed either 18 volts (horizontal DATV) or 12 volts (vertical NB) depending what I am wanting to receive. For alignment its easiest to use some SDR and find the beacons – easy to peak up on the signal then, not forgetting to tweak the LNB for skew (about 23 degrees).

For DATV reception you really need a Mini-Tiouner (built previously and tested, 2017 SRCC CC). It's then a simple matter of selecting the correct parameters and frequency, selecting horizontal polarization and bingo, a picture. The WEB SDR mentioned in John's article <https://eshail.batc.org.uk/wb/> is very handy especially as it now shows the frequency and SR in use.



Understandably this takes most of the guesswork out of entering the correct values. On the TX front I have plenty of options for 2.3GHz having acquired 'kit' for this over the years. A 30 watt 'Spectrain' amp, a 'Stealth microwave' 20 watt amp that needs only mW of drive and a 'Remtec' beast capable of 60 watts (photo on right) although this needs a 50 V psu. That and various pieces of Heliac should do the job. A very narrow filter from Poland deals with the output spectrum, all of £29 delivered. You have to love the surplus market!

If you fancy joining in the DATV fun I'd recommend joining the BATC, pay the little extra for a very nice glossy magazine too, it's worth every penny.

Slowscan picture received via Oscar 100 on the right:



See you on the 'bird'.



We bought a camper (below):



Over the years Jayne and I have discussed the possibility of owning a camper of some sort, not one of the luxury 'plastic palaces' (with price-tags that match) and not one of the old VW's however 'sweet' they may be deemed.

By chance one popped up on my Facebook marketplace feed, a Bedford CF Autosleeper, 'non-runner' but with only 62,000 on the clock. A quick check of the MOT history showed it as having only done 100 miles a year since 2007 and no advisories of any consequence in the history. Jayne liked the 'look' so we went to see it, located at Bishops Stortford. I decided that the non-runner bit would be an easy fix, it was in good internal condition and it did indeed have character, so we bought it, raiding the local cash machine for £1000.

After getting recovery quotes of £170+ I decided to take a chance, load up with my sundry spares and fix-it solutions and go back and see if I could get it running. The owner (who had bought it last September) had replaced the ignition leads and got them crossed over. I restored the 1-3-4-2 order (except Mark 1 Escorts 1-2-3-4, ask me how I know) and at this point it ran briefly on a bit of petrol poured down the carb so onwards to the fuel supply problem. This was resolved by feeding the pump directly from a petrol can in the cab. It ran, no charging of the battery and the oil pressure light came on. As I'd previously insured it, I decided to drive it home as-is. A spare battery was jumped in parallel with the vehicles own and I took care not to stall it on the drive home – nearly all motorway.

Those familiar with the Bedford CF may recall that it has a 'dog-house' engine cover between the cab and engine. With this removed (for the petrol feed in the cab) most of the hot air from the radiator floods back into the cab and kept me warm on the drive home! The first gallon lasted about 25 miles and I swapped over my second at that point, getting as far as the A21 before I needed to use the third. The oil pressure light I decided early on was down to a faulty switch (£3.95 eBay) as I've seen more faulty oil pressure switches than engines so tired that the oil pressure is genuinely that low.

The fuel supply issue was just a poorly fitted after-market in-line filter, simple fix, remove it. A new old-stock alternator for £60 from eBay fixed the charging issue. I subsequently checked over the brakes (all as-new), the

underside and brake pipes (no issues) so I took it for an MOT, which it duly passed. For its age, it's actually a nice drive, with the optional overdrive on 3 & 4 fully functional. It's got all we need bar a shower but it does have a gas water heater, so DIY bed-baths should be possible ;-). Also a 3-Way fridge, dual gas ring, grill and oven, gas heater and 240V hook-up along with a leisure battery system, ideal for my intended use as a 'radio truck'.

It should be out and about this spring/summer, but the plan is to install a Mazda 1800 engine (modern EFI and efficiency plus either automatic or manual, tbc) next winter. Said engines are very cheaply available from Mazda MX-5's and by using a tape measure, I have determined that it will be a relatively simple fit. With 30 bhp more than the 2.3 litre slant-4 it has in there at the moment, it should be a little more lively and a lot more economical. Plus, I clearly need another project.....only problem is it's in 1980's 'beige'. We may change that too.....

Gareth G4XAT

Technical Snippets

a) Large Drives: Mouser Electronics is now stocking the 9200 Series of NVMe Express (NVMe) solid state drives (SSDs) from Micron with sizes ranging from 1.6 - 11TB.

One of the first NVMe SSDs on the market with a capacity exceeding 10 TB, the 9200 SSDs offer high capacity, fast speeds, and low latency for high-performance functions such as application and database acceleration, online transaction processing (OLTP), high-frequency trading, and high-performance computing. [Source eeNews]

Miscellaneous

a) On 25th April Cathy and I visited Hall Place & Gardens in Bexley. The house was first constructed in 1520 and has undergone significant changes and expansion over the ensuing years. In the house you can visit:

- Sections showing construction styles and techniques across many years
- Exhibitions featuring the first transatlantic flight by Alcock and Brown in a Vickers Vimy with a model of that aircraft, WWII medical examples and the use during WWII by the Y Section who were monitoring and recording German radio communications that were sent to Bletchley Park for decoding.
- A restaurant serving snacks and lunches

In addition there are significant gardens.

For more information see:

<https://www.hallplace.org.uk/>

b) Amberley Museum & Heritage Centre: During a recent one week trip to see our son and his family in Chichester we visited this museum. There is a lot to see including a fire station, village garage, telecommunications gallery, electricity hall, bus garage, wireless exhibition including a working amateur radio station, narrow gauge railway, printing exhibition and the Tools and Trades History Society.

Apparently the "Electricity" sign over the electric hall came from the old Seeboard building in Croydon.

The site totals 35 acres and has a bus service and and steam train service, both manned by volunteers.

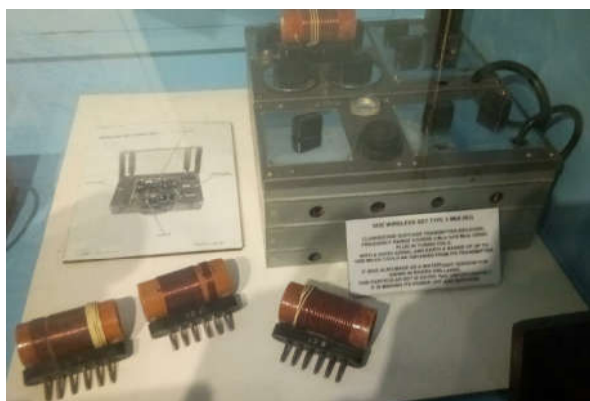
For more information including opening days and hours see:

<http://www.amberleymuseum.co.uk/exhibitions>

c) Tangmere Aircraft Museum

During the Chichester trip we also visited the ex-WWII RAF site which is now a museum with a lot of displays to work your way round.

Seen in the radio collection was a B2 Paraset sent in with British agents during WWII:



and an unusual homemade crystal set:

Outside there is a collection of aircraft including the Gloucester Meteor, the first UK jet aircraft to fly at the end of WWII. Inside there are several halls of exhibits which include personal information on pilots and aircrew from during and after WWII.

One of the Lancaster exhibits shows the radio communications equipment using an 1154 transmitter, easily recognised with its large multi-coloured control knobs and an 1155 receiver.

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.

Wanted:

I have a big bundle of J-Beam elements for 2M, and a folded dipole in their style. The elements have end-caps in white (maybe yellow once upon a time), brown and black – three different lengths. As I'm missing any boom I wonder if anyone has stashed away assembly instructions for any of their 2M aerials from which I could try and replicate whatever it was, presumably 4 elements upwards. There are many multiples of each colour, but just one folded dipole. An email scan would be great or even brief details of spacing and element lengths. I have some tubing that will do for the boom, I juts need to know where to drill it! Thanks. Gareth, G4XAT, g4xat@ntlworld.com.

For Sale

CPREC has a large bank of fundamental and overtone quartz crystals, from 1.0 – 99.91MHz. The list, which 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@aol.com.

73

G300U

Diary of External Events

9 Jun 2019 - East Suffolk Wireless Revival (Ipswich Radio Rally)

Kirton Recreation Ground, Back Road, Kirton IP10 0PW (just off the A14). Open 9.30am, entry fee £2. Free car parking. Trade tables are from £10. Trade stands, car boot sale, Bring & Buy, SIGs, GB4SWR HF station and an RSGB bookstall. Catering on site. Contact Kevin G8MXV, 07710 046 846. [www.eswr.org.uk].

23 Jun 2019 - Newbury Radio Rally and Boot Sale

Newbury Showground, next to M4 J13. Talk-in on S22 (V44). Free car parking. Traders access at 8am, visitors at 9am. Admission £2.50. Car boot sale pitches £12.50. Huge radio, electronics & computing boot sale, demonstration marquee with display of amateur radio on air, clubs and national society stands. Catering on site. Contact Phill, G6EES on 07771 504738 or by email to NewburyRally@nadars.org.uk Web www.nadars.org.uk

14 Jul 2019 - McMichael Radio Rally and Boot Sale

Reading Rugby Football Club, Sonning Lane, Sonning on Thames. RG4 6ST. Open 9.30am to 3.30pm, admission £3. Car boot sale pitches £10 (setup from 7:30). Trade stands and exhibition displays. Catering and bar onsite. More from Min, G0JMS on 07917 830 410 or by email to G0JMS@RADARC.ORG. Web: www.mcmichaelrally.org.uk

25 Aug 2019 - Milton Keynes ARS Rally

Irish Centre, Manor Fields, Watling Street, Bletchley MK2 2HX. Entrance £3. Trader options available with extra indoor pitches available for 2019. Free parking and on-site catering. Open to traders 7am, public from 9am. Additional information at www.mkars.org.uk/rally or contact Francis Hennigan, M0UKF rally@mkars.org.uk or 07563 498 156

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.

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/>

06 Jun Unexplained Mysteries and Cover Ups by Andy Thomas

25 Jul Spectrum Matters Talk by Barry Lewis G4SJH

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. Web: www.bdars.co.uk

18 Jun Direction Finding by Steve M0PEL

16 Jul Mini HF Antennas Construction

20 Aug Operating and Social Evening

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 Web: www.g0mwt.org.uk

04 Jun Beam Building by Dave Cutts M0TAZ

02 Jul Three Short Talks including OFDM and All That by Phil Pearson G0UIB and Marine Radio by Tony Gilbey G4YTG

06 Aug Constructors Competition

03 Sep Life as a Radio Officer by Dave Ellis G4AJY

Couldson Amateur Transmitting Society (CATS)

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

10 Jun Annual DF Hunt

08 Jul Operating Evening

12 Aug Club Annual BBQ

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 or Web: <http://www.carc.org.uk/>

26 Jun Radio Astronomy on a Budget by Peter East

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

31/5 - 2/6 GB19KO (Cricket World Cup Special Event Station)

06 Jun Talk on Major Rowland George Shears BEM TD G8KW by Colin Durack

20 Jun Annual DF Hunt – Guy G0UKN and Richard G8ITB

Dorking & District Radio Society

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

25 Jun Morse code by Mary Ashdown

24 Sep Small loop antennas by Colin Berry

22 Oct Hermes Lite SDR by Alan Hopper

26 Nov AGM & film

Echelford Amateur Radio Society

Meetings on 2nd and 4th Thursdays of each month at the Weybridge Vandals Rugby Football Club. Enquiries to Phil at m1gwz@icloud.com. Web site: <http://www.qsl.net/g3ues/index.htm>

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/>

26 Jun Video Presentation

28 Aug Construction Contest

25 Sep Photos Presentation by Alan Harding

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/>

23 May Social - The Fountain - Ashurst - BN44 3AP

06 Jun Radio Astronomy by Peter East

11 Jul Thursday Evening Fox Hunt – Paul G4TMC

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

31 May Table Top Sale & Radio Night

14 Jun Foxhunt

21 Jun Windmills Evening

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/>

18 Jun The AOR DV1 by Ian G7PHD

16 Jul Members talk on their favourite software

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.

11 Jun All things Micro by Andrew Brown M0ONH

09 Jul Club Night

13 Aug Club Night

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/>

17 Jun SRCC Club Construction Project - TBC

15 Jul Setting up and Using N1MM Contest Logging Software; RSGB HF Contest Adjudication Process - Quin G3WRR

12 Aug SRCC Annual Barbecue - TBC

07 Oct Autumn Surplus Equipment Sale

Sutton & Cheam Radio Society

8pm on 3rd Thursday every month. Contact Chris Howard at [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.

20 Jun Highlights of Dayton 2019 by Chris Howard M0CTH

15 Aug Heil Sound by Bob Heil, K9EID

19 Sep Introduction to Oscilloscopes, Martin Butler, M1MRB

17 Oct HMS Belfast Radio Volunteers, Jorgen Faxholm, M0AXP

12 Dec Christmas social and friendly quiz

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	8 & 22 June 4 places left	Crockenhill Village Hall	Darenth Valley	2 days (Sat)	http://www.darenthvalleys.org
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.cvr.org
	= course commenced				

CPREC Committee Information

Officers:		
Chairman:	Secretary:	Treasurer:
Damien Nolan 2E0EUI	Alan O'Donovan G8NKM	Ian Skeggs M6FZC
E: cprec.g2lw(at)gmail.com	E: cprec.g2lw(at)gmail.com	E: cprec.g2lw(at)gmail.com
Committee Members:		
Bob Burns G3OOU	Newsletter Editor	T: 01737 552170 E: g3oou(at)aol.com
Nick Stapley	Web Manager	