SURREY RADIO CONTACT CLUB
MARCH 2024 – No 979

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MONTHLY MEETINGS NORMALLY ON 1ST AND 3RD MONDAYS 7.30 FOR 7.45pm

Meetings at St Paul's URC, Croham Park Avenue, Croydon CR2 7HF

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1st MEETING Monday 4 March: Surplus Equipment Sale

2nd MEETING Monday 18 March: Fix-it, Move-it-on and Social Chat with John G8MNY

SRCC COMMITTEE 2023/24

Chairman & Publicity	G3MCX John Kennedy	020 8688 3322
Vice Chairman	G4LZE Colin Lugard	07533 174388
Hon. Secretary & Newsletter Editor	G3WRR Quin Collier	020 8653 6948
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Events	G6JXA Kim Brown	07812 735507
Webmaster	G4FYF Steve Jones	01424 584143
Trophy Manager	G7RUX Jason Gardner	07515 357630
VHF NFD Co-ordinator (Co-opted)	G3ZPB Peter Burton	07989 557888

EDITOR'S OPENER

Dear Members & Friends, welcome to the March SRCC Newsletter.

Unfortunately, I must open with some sad news. Ted Jones G3EUE, one of our longest serving members, and certainly our oldest one at the age of 101 years, died on 24th January. Thanks to Phil G4UDU who lives in the same village for passing the news on. Phil advises that Ted passed away peacefully in his sleep, and that his widow Daphne is being looked after by their son Simon (I believe there is another son who lives in VK7 (Tasmania). Personally, I only met Ted once – and that was briefly back in the 80s. However, I got to know him (electronically) quite well when he submitted entries for the SRCC League Table and we used to exchange e-mails about this and that: for a gentleman of his age his use of the English language was remarkably fluent. Then in late April 2023 his regular e-mail said that he had had a fall, which with characteristic humour he described as follows: "*Am not sure whether I tripped or what but not to be recommended as a pastime! Fortunately, the furniture was not damaged.*" He appears to have recovered from the direct physical effects fairly quickly, but as so often happens with older folk, it must have given his system a major shock and he seemed to go into a decline: his e-mails commented that he hadn't been back on the air and became less regular and fluent as the months passed.

I would like to do a proper retrospective on him and his activities with SRCC as we did with Maurice / Prim and John G3ENG. I have already received one anecdote (thank you Steve G4FYF)

so if you have any information – and even better if you have a picture or two – please let me have them and I will pull them together for (hopefully) next month's Newsletter. I will shortly be producing a formal letter of condolence to Daphne and their sons on behalf of the Club.

Anyhow, that's quite enough from me, so on we go…..

73, Quin G3WRR

PREVIOUS MEETINGS

February A meeting (5th) This meeting was a presentation of the RSGB "Tonight at Eight" series video produced following the Ofcom Statement which was the outcome of their Consultation "Updating the amateur radio licensing framework". The video was largely presented by Steve Thomas M1ACB and Murray Niman G6JYB and it:

- outlined the processes used by the RSGB in forming its view on the Statement and presenting this to Ofcom
- summarised the changes (to be implemented in three phases) included in the Statement
- considered their implications
- described the next steps.

After the video the SRCC members present discussed the outcome and concluded it to be generally good. One cause for concern was the raising of the power limit for Full Licences from 400W to 1kW. It was felt that this could well give rise to increased interference problems – at a time when assistance from the due authorities is no longer available.

February B meeting (19th) This followed the usual Fix-it, Move-it-on and Social Chat format. Three visitors attended, including is an ex-CBer who is intending to take up amateur radio on his forthcoming retirement a recently licensed 2E0ILP seeking assistance on how to drive his new rig. It is hoped that one or more will become Club members.

FUTURE MEETINGS

March A meeting (4th) Surplus Equipment Sale – this will be an opportunity to gain money for all that gear you no longer require – and use it to buy more! As usual Gareth G4XAT will act as auctioneer. The sale will largely be for members to dispose of their gear but if time permits some of the club stock (largely from SK gear gifted to the club) will be offered for sale. A set of rules is appended at Annex A: these are not draconian, but are simply provided so that all attendees understand how the machinery works!

April A meeting (8th) Annual General Meeting. Potentially this is a dry topic, but it affects the club and the part the members play in it, so please come along and have your say.

B meetings, Unless specifically advised otherwise, these will continue to take place on the third Monday of the month and will follow the current Fix-it, Move-it-on and Social Chat format.

73, Quin G3WRR

UPDATE ON OFCOM LICENSING CONSULTATION / STATEMENT

Following the Ofcom Statement resulting from its Consultation on changes to amateur radio licensing conditions (as discussed in the RSGB video presented at the February A meeting) and a brief subsequent "last shout" period for final comments, Ofcom have announced that the first tranche of changes would become operative as of 21st February. More detail is available on the Ofcom website at the following URL:

https://www.ofcom.org.uk/news-centre/2024/amateur-radio-more-freedom-to-innovate?utm_medium=email&utm_campaign=Amateur%20Radio&utm_content=Amateur%20Radio+CID_dde6b97cfe4e9f98ffc22b04177e4c84&utm_source=updates&utm_term=amateur%20radio%20licensing%20changes

It is quite an important document, and a read and inward digest is recommended as it affects us all!

73, Quin G3WRR

TESTS AND EXPERIMENTS WITH A DMR SINGLE FREQUENCY REPEATER (SFR) BY PAT G4FDN

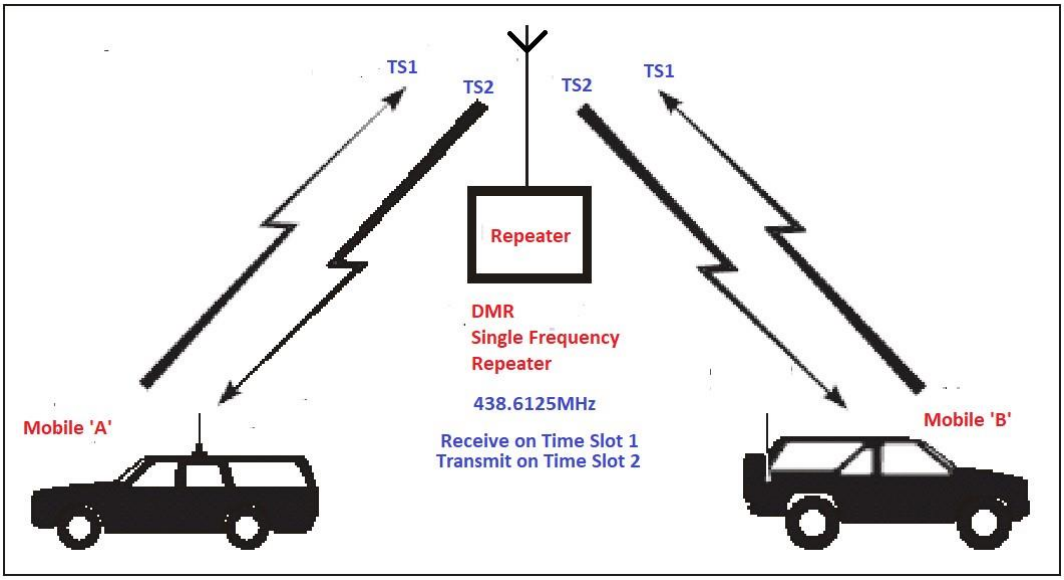
Background: my continuing interest in mobile operation, including pedestrian mobile operation, and repeaters goes back to the first half of the 1970s when I got set up to use the UK's first FM Repeater GB3PI in Barkway, Herts that received on 145.150MHz and transmitted on 145.750MHz. My first QSO through the repeater was fifty years ago on the 17th February 1974 with G8ELA in Bedford. GB3PI like the overwhelming majority of repeaters in the UK and around the world use frequency separation between transmit and receive.
Single frequency repeaters on FM are rare in the world and I have only heard of examples in the USA. RadCom Plus, Vol. 4, No. 1 in October 2019 carried a detailed example of the technology and design on an FM SFR. The notes that follow are about a digital single frequency repeater.

I became interested in digital voice transmission in 2012 getting going on FreeDV (a mode which I still use) and then in 2014 on DMR on 70cm, and the following year on DSTAR on all bands from Top Band to 70cm.

DMR Specifics: DMR is different to most other digital voice modes in that it uses time division multiplexing for separating out two voice channels in two separate time slots. The most common form of a DMR repeater uses two frequency two time slot operation giving the ability to carry two simultaneous separate QSOs on the same repeater. The less used mode of operation is called a single frequency repeater using one time slot to receive on and another to transmit on. This is what I have been experimenting with.

I should point out that DMR can also accommodate two simultaneous separate simplex QSO's on a single frequency but this requires one of the four stations involved to be the synchronisation master and the other three stations to be in range of the master. This mode of operation is most commonly called Dual Capacity Direct Mode (DCDM). Normal DMR simplex operation is most commonly known as Direct Mode Operation (DMO).

The diagram below gives a visual representation of a DMR SFR.



There are currently two licenced DMR SFRs in the UK: GB7VT in Stoke on Trent and GB7EV in Edinburgh. Both are on 70cm on 431.1750MHz (NB: a frequency not permitted within a 100km radius of Charing Cross).

A DMR SFR can be configured in two separate ways. First where the SFR synchronises to the transmitting mobile station and transmits on the alternate time slot to that it is receiving on. For this the mobile stations are configured for Direct Mode Operation (DMO) simplex. The alternative way of configuring the SFR is to make it the synchronisation master to which the mobile stations synchronise their transmissions to. This is known as Dual Capacity Direct Mode (DCDM) Split Timeslot.

SFR Advantages: there are three obvious advantages of a SFR over a traditional dual frequency repeater:

1. Only one frequency required
2. No duplexer/circulator or cavities required
3. Overall system cost is lower

In order to carry out an SFR configuration and test three DMR radios are required at least one of which must be capable of being configured as an SFR. NB: not all DMR radios have a SFR capability.

I currently have four DMR transceivers: one Anytone AT-D578UVIII Plus, an Anytone AT-D878UVII Plus, a Retevis P1 and a Motorola DP3400. The latter three are all handheld radios and the Anytone AT-D578UVIII Plus is a mobile transceiver (shown below)

Dual band 2m/70m, dual mode FM/DMR 50W transceiver with crossband, crossmode repeater and SFR capabilities

Anytone AT-D878UVII Plus
Dual Band 2m/70cm, dual mode
5W transceiver

Retevis P1 (without antenna)
70cm dual mode FM/DMR
10W transceiver with SFR
Capability

4W 70cm dual mode FM/DMR Transceiver

Radio Architectures: the Anytone radios are SDR direct conversion transceivers whereas the Retevis and Motorola use a more traditional super heterodyne approach.

SFR Test Configurations: For the purpose of the tests the Anytone AT-D878UVII Plus was used as mobile station 'A' (as shown in the diagram), and the Motorola DP3400 was used as mobile station 'B'. The Anytone AT-D578UVIII Plus, and the Retevis P1 were used in turn for the SFR. All radios were configured for the same Talk Group, Colour Code and Time Slot*. To ensure that mobile stations 'A' and 'B' were not in direct simplex range their antennas were replaced by screened dummy loads and they were separated in distance until when either 'A' or 'B' were transmitting they couldn't be heard by the other. This was around a distance of 85ft. The SFR was powered down during this part of the test. It was then powered on and connected to my chimney stack mounted Diamond X-50 dual band 2m/70cm collinear antenna. Mobile station 'A' transmitted and reception on mobile station 'B' was confirmed. Mobile station 'A' was moved further and further away up to a distance of 1/3rd mile away with reception still being confirmed on mobile station 'B' with both still using screened dummy loads as antennas. Further tests were done with Alan G8TQK in Sutton, also confirming successful SFR operation both on 438.6125MHz but also on 144.6125MHz. It is also possible to operate the SFR on a split frequency split time slot basis but it can't really be called an SFR then as it uses two frequencies but it retains the SFR advantage of not requiring a duplexer/circulator or cavities.
NB: *when radios are configured for DMO (Direct Mode Operation) simplex it doesn't matter which time slot is actually set as other radios set for DMO will on receive synchronise to it.*

Next steps: as I have quite a poor VHF/UHF location in the upper Wandle Valley part of Carshalton Beeches, with the land rising in the east, west and southerly directions, I'm looking for an interested amateur in the Sutton, Wallington or Carshalton areas to temporarily host my SFR and carry out some more tests to determine coverage and range on a controlled access basis. I'm also currently looking at circuitry I could add on to the Retevis P1 to make it fail-safe, i.e. auto power down should it continuously transmit for longer than a pre-set time period and also 'beacon' its DMR ID periodically when not in use. The idea being that if there was sufficient interest from local amateurs we could plan and submit a Notice Of Variation (NOV) request for a permanently sited SFR on 70cm. As 70cm is allocated to radio amateurs on a secondary basis the new

licensing conditions allowing ad hoc repeaters on primary bands does not apply. My personal aim of having a SFR would be to promote more local hand held operation.

Questions: One of the early questions I was asked was what happens when mobile stations 'A' and 'B' are within simplex range of each other? In DMO SFR configuration direct simplex operation on the same frequency is seamless. Say 'A' transmits and 'B' is in simplex receiving range what happens? As the signal from 'A' will reach 'B' before the re-transmitted signal from the SFR 'B' will hear 'A' directly on TS1. Should 'B' move out of range of 'A' then 'B' will seamlessly receive 'A's transmission via the SFR. Should the SFR be set up for DCDM Split Time Slot then direct simplex reception will not happen as the SFR will be providing synchronisation and 'A' and 'B' will be receiving only on TS2.

It should be noted that an SFR introduces a minimum retransmission delay of 30mS on receiving TS1 and transmitting on TS2. If the particular SFR processing time exceeds this then the delay between receiving TS1 and transmitting on TS2 will be 90mS.

If anyone is interested in understanding DMR protocols more at the packet level then the ETSI (European Telecommunication Standard Institute) documents:

- General System Design - ETSI TR 102 398 V1.5.1 (2023-11)
- Part 1: DMR Air Interface (AI) protocol - ETSI TS 102 361-1 V2.6.1 (2023-05)
- Part 2: DMR voice and generic services - ETSI TS 102 361-2 V2.5.1 (2023-05)
- Part 3: DMR data protocol - ETSI TS 102 361-3 V1.3.1 (2017-10)
- Part 4: DMR trunking protocol - ETSI TS 102 361-4 V1.11.1 (2021-01)

Will prove quite a cure for insomnia. The more interesting way to discover what is happening is to use the free DSD (Digital Speech Decoder) and DSD plus applications with an SDR. See Digital Speech Decoder (software package) - The RadioReference Wiki

If anyone in SRCC is interested in helping me taking a SFR project further please contact me directly.

73, Pat G4FDN

HERE AND THERE

Members who read their Radcom thoroughly will have noticed that member Paul Beaumont G7VAK has had a letter on The Future of Amateur Radio published in the March 2024 issue. Well done Paul – do give it a read if you haven't done so!

At the February B meeting we had a visit from Nick G4NVZ (if I've got his details wrong I apologise…). Nick works for the firm *BW Broadcasting Ltd* which is looking for a junior electronic technician to join the company. While few of our members count as juniors (at least in age terms), if you are interested in a career change or have a relative or friend who might be interested, please pass the flyer (attached at Annex B) on.

73, Quin G3WRR

SECURING YOUR BT EMAIL ACCOUNT

There have been several instances recently where members have had their BT Internet Email account “hacked”. A way of improving security to one’s BT Email is to setup Two Factor Authentication (2FA) though BT have decided to call it Two-Step Authentication (2SA).

I have grabbed the following steps from the BT website page:
https://www.bt.com/help/security/two-step-authentication

What is two-step authentication?

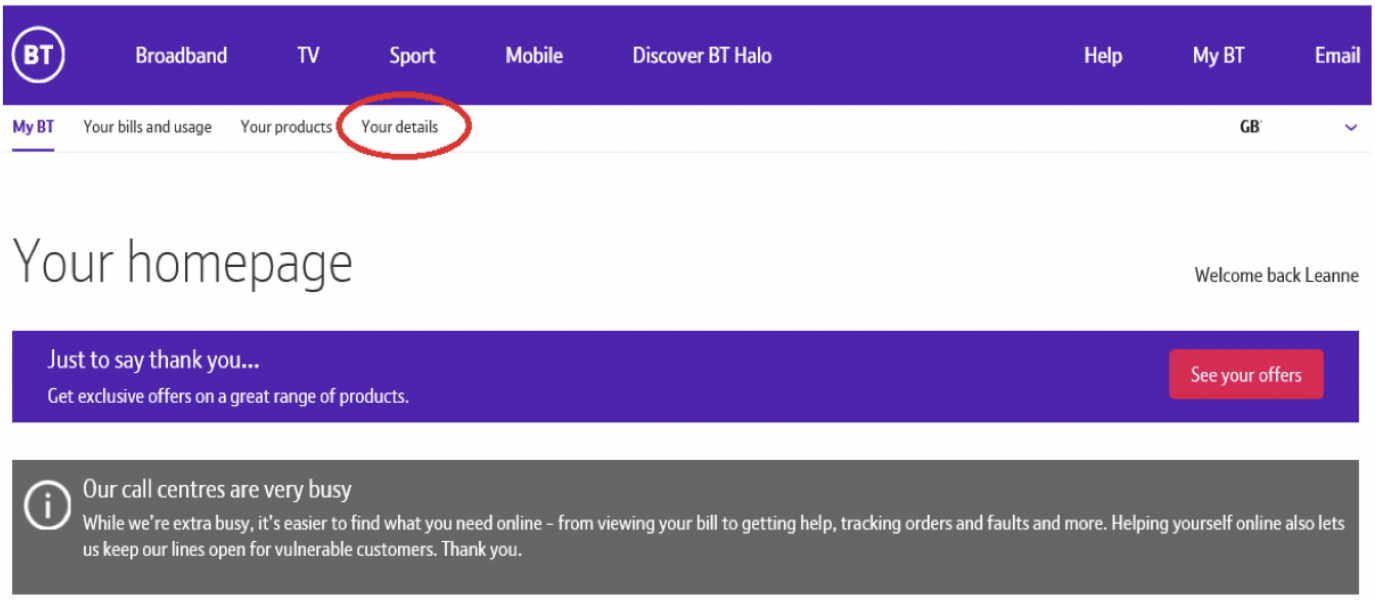
Two-step authentication (or 2SA) is a way of logging in where you confirm your identity in two ways. It will help to keep your account and identity more secure as it is safer than just using a password.

We now offer two-step authentication on our website and the My BT app. It's optional.

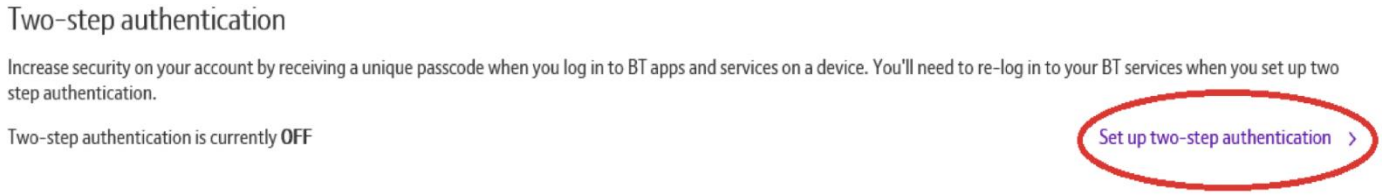
How do I activate it?

Log into My BT as normal using your ID and password and follow the below steps. Please note that this cannot be done in the app.

1. On your homepage, click **Your Details** at the top of the page.



2. On your Profile page, select **Set up two-step authentication**



3. We'll then ask whether you want your passcode sent to your email or mobile. You'll need to enter this passcode to confirm your identity so you can complete the set up of two-step authentication.

4. You will then receive a text and an email confirming that two-step authentication has been successfully set up.

We recommend keeping two-step authentication switched on so that your BT Identities are protected, but if you want to switch it off at any time, you can do this from your Profile.

What are Trusted Devices?

When you opt in to two-step authentication, a passcode will be sent to you via text or email each time you log into your online BT Identity. You need to enter this passcode to verify your identity.

You can however register your device as a **Trusted Device** which means you won't have to enter the passcode each time when using that device.

To view or remove your Trusted Devices follow the below steps.

1. Go to the **Your Details** page
2. Select **Two-step authentication**
3. Select **Edit two-step authentication settings**
4. Select **Your trusted devices**

I would strongly recommend that anyone with a BT Email address configures 2SA on their account to prevent possible hacking in their account. I would also recommend that the 2SA passcode in sent to one's mobile, rather than Email, as I feel this would be more secure.

Also, once the account has been compromised, when you regain access also check that no email rules have been setup which could forward emails to the hackers account, etc. This page gives useful information: https://www.bt.com/help/email/email-security/how-can-i-tell-if-my-email-account-is-no-longer-secure

Trust this info is helpful.

Ray G4FFY

SRCC LEAGUE TABLE – JANUARY 2024

Five entries were received for the first League Table of 2024. The January monthly results are as shown below:

ENTRANT	WORKED DXCC / SQUARE	WORKED SRCC MEMBER	WORKED IN CONTEST	POINTS THIS MONTH
G4FFY	46	1	20	114
G3ZPB	22	1	23	69
G3WRR	20	1	21	63
G4FYF	13	1		28
M0LEP	6	1		14

The following notes come from the entrants…

G4FYF: *Somewhat lightweight for January, domestic projects restricted radio time. 40 & 20 meters mainly. Contact with Canadian on 10 meters was quite refreshing; he, too, was using 100W to a dipole, 5&7 both ways. Unusual for transatlantic station to run less than 1.5kw to a load of metalwork in the sky!*

G3ZPB: *Here we are at the start of a new year and here is the first entry from G3ZPB....Nothing remarkable - 69 points. All contesting including a couple of AFS ones.*

M0LEP: *I've not been on air much during January. Martyn G3UKV, who used to run the Thursday morning GB2CW broadcasts that have been a regular operating slot in my week since February 2013, became a Silent Key at the beginning of the year. I catch John G8MNY on 80 metres most Mondays, and I have done a little bit of SOTA chasing this month, but more of it using SSB than CW so far this year.*

G4FFY: *Mainly operated in the 2m and 70cm FT8 AC's and 2m & 70cm UKAC's, plus on HF the 40m-80m January SSB AFS Contest. Also did a little bit of 40m/80m FT4 and FT8 operation using only 10W. Overall a lot quieter month Amateur Radio wise!! As of end-January 2024, I'm still on 160 DXCC's, no new DXCC's were added in January.*

G3WRR: *All contest stuff as usual. The HF points were all made in the RSGB 80/40m CW and SSB contests using the Club call G3SRC and were all with European stations. However, an RBN (Reverse Beacon Network) spot at 1645 UTC was received from UA0S in Asiatic Russia (close to the northern border of Mongolia) at a distance of 6517km – most surprising…but in a good way! Also 3 scoring squares were made in the 4m UKAC.*

The cumulative scores are shown below (not that they tell us a great deal for the first session of the year…). Ray G4FFY, last year's winner, is clearly starting 2024 in the way he means to go on!

ENTRANT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
G4FFY	114												114
G3ZPB	69												69
G3WRR	63												63
G4FYF	28												28
M0LEP	14												14

Solar cycle 25 seems to have got over the grumps it was suffering a few months ago, but the high level of variability makes it difficult to see the long-term trend. continues to seesaw up and down (but how else would a seesaw move?). So, it's "fingers crossed again" time….

73, Quin G3WRR SRCC Leaguemeister

SRCC NETS

The following is a list of structured nets on which members of SRCC meet regularly. They are sometimes joined by members of other local clubs, who are always made most welcome. The net is not usually led by a nominated controller, but stations normally transmit cyclically in the chronological order in which they sign in. If any member wishes further occasions and frequencies to be added to the table, please let me know at g.g.collier@btinternet.com.

BAND/FREQUENCY/MODE	DAY OF WEEK	START TIME (clock)
160m / 1905 kHz / LSB	Sunday	9.30 am
80m / 3710 kHz (+/- QRM) LSB	Monday	9.00 am
10m / 28.078 MHz / JS8	Wednesday	10.00 am
6m / 51.55 MHz / FM	Tuesday	8.00 pm
4m / 70.30 MHz / FM	Thursday	8.00 pm
2m / 144.6125 MHz / Digital Voice	Friday	7.30 pm
2m / 145.35 MHz / FM	Friday	8.00 pm

* The Friday night Digital Voice net usually starts with D-star.
In addition to the regular Club Nets, several members monitor the local repeater channels, particularly GB3XP (145.6875MHz 82.5Hz CTCSS FM)

THAT'S ALL FOLKS…..

Thanks are due to Pat G4FDN and Ray G4FFY for their inputs. Inputs from members are always welcome so if you are feeling creative, please do let me have something to include.

Nothing further to add, so see you next month when I will no doubt bore you with details of my Jolly Jaunt to the Isle of Wight for the Commonwealth Contest….

73, Quin G3WRR
Secretary and Newsletter Editor

ANNEX A

SURPLUS EQUIPMENT SALE RULES

Most of you will be familiar with the format – but for any newcomers the “rules of engagement” are as follows:

1. It is very helpful for sellers to be in the meeting room by 7:30pm and to bring good quality saleable stuff – no “rubbish” please – although, like beauty, what constitutes rubbish and what constitutes high quality gear is in the eye of the beholder!

2. All members and visitors whom they have brought along must sign the attendance book and all must be conversant with the rules.

3. It should be noted that the club accepts no responsibility for goods sold at this private sale, and the purchasers buy on the understanding that they are capable of determining the usability, fitness for purpose and SAFETY of goods obtained

4. The following also apply:

• only SRCC members are permitted to sell

• all items not donated for the benefit of the Club must be marked with the name or callsign of the vendor, a brief description and details of any reserve price

• bids shall start at 50p and increment in steps of 50p up to £10 and £1 steps thereafter – unless determined otherwise by the auctioneer

• the auctioneer, in his sole discretion, will determine what constitutes an acceptable bid

• sellers will not be paid until all buyers have settled up

• the club levies 15% commission on all commission sales

• please do not obstruct the doorway, facilitating escape in case of fire

• the venue is a NO SMOKING area.

ANNEX B

BW Broadcast Limited
Unit 27,
IO Centre,
Croydon Road,
Croydon,
CR0 4WQ

Tel: +44208 253 0290
info@bwbroadcast.com

www.bwbroadcast.com

Junior Electronics Technician Required

BW are looking for an enthusiastic person with an electronics background to join our busy radio transmitter manufacturing company.

The successful candidate should have a good understanding of electronics, have excellent communication skills and be keen to develop their existing electronics build capability.

Training will be provided, but potential candidates would find the following skills an advantage

Ideal but not essential:

A good understanding of electronics test equipment, including multimeters, oscilloscopes and signal generators.

Competent soldering skills including re-working of surface mounts and through-hole components and able to build, test and repair electronic equipment.

Demonstrable competency in the safe use of workshop tools.

Able to read, understand and work from schematic diagrams.

Experience with analogue and digital broadcast systems.

This is a well-compensated role and the salary for the successful candidate will be based on their relative experience and capability.

Interested candidates who fit the above criteria should send their CV to:

tina@bwbroadcast.com

Thank you for your interest in BW, we look forward to hearing from you.