

HORSHAM AMATEUR RADIO CLUB

HARCNEWS

Coming Shortly

May 6 Club Night Police communications

May 20 Club Event Evening DF Hunt

Jun 3 Club Night Enigma by Claire Greer

Jun 17 Social Evening Fountain Ashurst

May 2004

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Satellite and Digital 2004

by David Miller G4JHI

Last year the BBC ended their agreement for conditional access with Sky Digital in a bid to make a saving of £85 Million over 5 years. Since July 30th all the BBC channels on digital satellite transmit unencrypted. Up until that date it was necessary to have either a subscription or a free to view card to watch the BBC, ITV1, C4 and Five channels.

It is now possible for a Scots person living in Brighton to watch BBC Scotland or someone from England living in Wales to be able to see the BBC local programmes from Norwich and so on. Also any type of digital satellite receiver can be used to receive the BBC services rather than having to resort to a dedicated Sky digibox. I would point out that non-Sky receivers cannot access the interactive services available on the BBC channels.

To limit coverage, the TV and radio services were moved from the Astra 2A satellite at

28.2° east to Astra 2D, which has its footprint, focused on the UK with overspill into Iceland and the nearer areas of France, Germany, parts of Scandinavia and the Low Countries with modest size dishes. BBC Radio 2 and 4 FM have since moved to Astra 2B for full European coverage.

I understand that due to copyright restrictions, BBC Scotland has blacked out some football matches to date and a notice is displayed advising viewers to retune to terrestrial TV! The free to view cards that were available (provided by Solus) to watch just the free channels have now been discontinued and in order to watch ITV1, C4 and Five it is now necessary to subscribe to Sky or at least have an expired viewing card of the current P2 (dark blue) variety.

There are currently negotiations going on to try and resolve this issue. Channels come and go and sadly this

TCM on January 6th showing classic movies that had been available free since the start of Sky digital and receivable all over Europe. This is now included in the Family package. This caused quite a stir on the Internet forums! One of the most recent additions to the line up is the UK version of Fox appropriately named FX.

Here you can watch classic 60's series such as Lost in Space, Voyage to the Bottom of the Sea and Land of the Giants (I'm following all three!) and the more recent X Files and The Shield. Whether you have Sky or not there are many hundreds of other channels beaming across the European skies some of which can be received for free with programmes of interest.

Many who have upgraded from the Sky analogue system to digital have kept their original setup just to be able to watch programmes from other countries. The most popular Astra1 (19° east) satellite host's mostly familiar Germany language programmes, very well if you speak the lingo! Music channels Viva and MTV and the English

CNN and CNBC can also be found. Over at Hotbird (13° east) channels in Polish, Italian, Portuguese and BBC World are available and the French service of ARTE.

On the latter some of the films are transmitted with the original English soundtrack and French subtitles whereas the German version on Astra1 is generally dubbed unless it is in Spanish or Japanese for example! If you point a dish at Atlantic Bird 3 (5° west) there are several French channels but you will need a TV that supports Secam to see them in colour! In the future all analogue satellite transmissions will be switched off and channels are declining but slowly.

Next we have the European digital TV and radio services of which there are many! In order to receive them any standard digital DVB receiver is required and either a motorised, single or multi LNB setup the latter using a disequ switch which can operate up to 4 LNB's. The most popular satellites for free to air programmes are Astra1, Hotbird, Eutelsat W2 (16° east), Arabsat (26° east),

east), Turksat (42° east) and Hipasat (30° west). English soundtrack programmes can be found frequently on the following channels: TFJ, Daystar TV, TCT, ERT Sat, Jordan Satellite Channel, Oman TV Satellite, Arirang TV World 1, Hollywood Cinema and several of the Arabic channels found on Arabsat to name but a few.

I would point out that there is Bahn TV which is a German channel dedicated to trains and not forgetting the Sailing Channel, a good reason to go digital! Click Online is a weekly tomorrow's world for the PC and is screened on BBC World and BBC News 24. Most of the analogue services are duplicated in digital now. To receive Arabsat and Hipasat a 1m dish will be necessary.

Freeview is the successor to the failed ITV Digital, which provides digital TV channels through a normal UHF TV aerial and consists of six multiplexes as follows:

16 QAM system
BBC Multiplex 1 & B
Crown Castle C & D

64 QAM system
ITV/C4 Multiplex 2
SDN Multiplex A

There are many different makes of set top receivers available costing from around £40 upwards and some TV sets have digital tuners incorporated and tend to be rather expensive but the prices are already coming down. It is also possible to buy personal video recorders with Freeview tuners.

It is simply a case of plug and play as the latest receivers will search for all available channels or a manual scan can be performed. Unfortunately the reception may not always be up to standard and an aerial upgrade may then be necessary which may involve a new run of cable of the double screened variety as used for satellite installations.

Of the two types of transmissions protocols 64 QAM, is the most susceptible to interference problems but more channels can be squeezed into each multiplex and was used by ITV and OnDigital. 16 QAM is much more robust and reliable but provides less channels. At my QTH in

West Horsham the 64 QAM programmes break up from passing motor vehicles but the others are now 99%.

The best transmitter for Horsham is Midhurst, which had a power increase at the end of January to 2 KW on multiplexes 1,2,A & B. C & D have a restriction to the east and north to protect analogue services in neighbouring transmitter service areas and cannot be received here but I have it on good authority that they make it to Rudgwick! Some Crystal Palace channels can be received here but are unreliable and Reigate might be a better solution.

31st March saw the launch of Top Up TV a new pay service on DTT. The channels use multiplexes A & 2 so as long they are receivable at your QTH you can get it. Initially those with old Ondigital and ITV Digital receivers have been targeted as they incorporate card slots suitable for use with the new service.

Some Freeview receivers cannot be upgraded to pay TV in which case a new box will have to be purchased! I know that the very small Pace

model has this facility. Top Up TV uses the Seca2 encryption system. Due to restricted bandwidth all the channels are part time.

Last year saw the opening of 5 new analogue transmitters for Five. The nearest is at Reigate using ch 42 with vertical polarisation at 5 KW ERP. I put up a wideband aerial in the loft for experimentation purposes and found that a watchable picture is received using a masthead amplifier. However considerable co-channel interference is received from ITV1 from Hannington near Basingstoke but then Horsham is outside the intended service area!

Proposals have been put forward for a staggered analogue terrestrial TV switch off in the UK starting in 2007 with BBC2 followed by BBC1 area by area. The other channels would follow in a plan that would take 5 years to complete. Whether this will happen as early as 2007 is an unknown factor, we shall see.

David Miller

April Meeting: Bring, Show and Tell

Or an alternative to the Homebrew Meeting! The evening was full to capacity in terms of items on show. We had some cross-stitch examples from Ann M1AIM of almost Lowry quality about them. Ann had a large cabinet of hundreds of different colours of threads.

Tony G3NPF, built a device for marking gears that he bought as a kit of 2 gears, 2 worms gears and a block of iron. It took hundreds of hours to complete and he can now cut gears of almost any number of teeth.

David G4FQR, brought along some of his water-colour paintings from his night-classes. He explained that he was in the process of learning the 'grammar' of using water-colour. David also brought along a wind-up radio for sailing use. As salt-water spray de-

stroys battery contacts faster than one can say LLanfair-somethingorrathergogoch, he invested in a battery-less radio.

Unfortunately the radio uses the wind-up generator to charge batteries, unlike the Bayliss radio which uses clockwork, so it is rather unsatisfactory for this purpose.

Brian G3GDU, showed us a selection of photographs he had taken, developed and subsequently had judged at the Crawley camera club. He explained that, being subjective, some judges would give full marks to a photograph yet other judges awarded less marks.

One photograph was of two Red Arrows aircraft passing each other in opposite directions. A judge complained

that the aircraft were not in focus and they were not nose-to-nose. Brian said that the shutter was opened by hand, and a matter of milliseconds either way would have been critical.

Adrian G4LRP, had his antenna tuner and demonstrated tuning up a small whip aerial on his mini-sized hf rig. It was similar to a pic-a-tune.

Robin G3OGP, showed his radio-controlled model aircraft. He said that flying it was quite difficult because when the plane was flying towards him you had to mentally reverse the control movements otherwise it would crash. Not easy when it could go 100mph at full speed!

The radio control was a proportional system and servos controlled rudder, elevator, ailerons and engine. Even the nose wheel followed the rudder, which was useful for takeoff. Normally rudder is not used.

Tony G3NPF also brought

along a Tait PIC programmer he built. The box not only programmes PICs but also E2PROMS given away with blood test kits! Normally these sort of programmers need an expensive zero-insertion force socket, so Tony sawed a large socket in half to make an economy pic-sized socket.

Alister G3ZBU, also built a Tait programmer but his bundle of wires had two turned-pin socket sites and utilised the pic's in-circuit programmability to save the horrendous expense of a ZIF socket. He also brought along a diesel smoke meter system for the annual MOT test.

It could test smoke emissions and oil temperature all remotely via an 868MHz rf link. Gerald M3GCR brought along a selection of spud-guns that he had made. One was of the pneumatic type in which an electric pump generated up to 200psi to force projectiles out of the barrel. The other gun worked on an explosive mixture of hair spray ignited

by a Sparkrite capacitive/inductive car ignition unit and had a larger bore sufficient for a whole potato. We were in-

formed that it would fire said projectile about 100 feet and is banned in New Zealand!



May Meeting: Police Communications

The next meeting is a history of Police Communications. In particular it is about how radio communications have changed and we will see some Police radio systems from the days of Pye in the '60s and how the design of Police radios seem to have changed

in circles.

The miners strikes in the '70s led to the first combined communications ability for different forces and changes in clothing moved the position of the radio to various parts of the body so the radio could not

be used as a weapon to hit the policeman over the head with their own radio!

Extra channels were provided for the multi-force inter-communication ability but these additional buttons confused the average user! The latest radios are now based on cell-phone technology and the days of police using AM in the 100MHz VHF band have changed.

Due to various Government plans of selling off spectrum, the Police will have to pay for each call on their new system! The new radios will have text message capability, and use both Tetra and the existing mobile phone network.

Of course the new recruits already know how to send text messages. In the past, unscrupulous people have listened to police radio channels to ascertain where all the squad cars are, so that criminals can rob banks/post offices etc. in another part of the 'manor'. These latest radios are able to send secure messages using top secret algorithms developed by Cheltenham GCHQ.

To obtain reasonable VHF coverage, the current communications system uses multiple transmitters on the same frequency to fill in holes in reception areas, by a cunning arrangement of accurate transmitter time delays set up to correct for path differences.

Late Spring Evening Fox Hunt.

Thursday 20th May Fox
G4HRS/P (G4LRP)

Transmission 9:00pm unless
you all find me.

Start, Manning's Heath first
Transmission 7:30 pm then
every 10mins for 2mins. Last

Map Dorking Reigate and
Crawley Frequency 144.725
FM (HARC Club Channel)



This is what you get if you let people
lost with a spud gun