# Ridgeway Repeater Group. Newsletter Third Quarter 2022

## Messages/Notices

### RRG Subscriptions:

When are they due and why do we need them?
To keep the repeaters on air we have certain unavoidable expenses, for example, Site fees (We use commercial sites whose owners charge us to use their facilities).Third Party and general Insurance.Maintenance/upgrading Internet connectivity (GB7TC).Without these expenses we could not keep the Repeaters on air.It was agreed by the committee some time ago that the subscription period should be twelve months running from early May (ie. The date of the AGM.)The subscription cost is £15.00 per annum.Subs can be paid through a Bank Transfer or through PayPal.(full details on the RRG Webpage) Membership status can be checked on the Webpage members list.
G0BQK RRG Treasurer

### So Why 'R'? and other snippets.

Have you ever wondered (or even noticed) why at the end of an over, GB3WH doesn't give a 'K' (dah dit dah)? GB3TD does. WH actually gives an 'R' (dit dah dit).
However it wasn't always like that. When GB3WH first moved to Swindon from Culham it actually gave two single widely spaced pips ('E' - - - 'E') the idea being that if you wanted to "break in" you did it between the "pips".
GB3WH then was totally 'home-brew' everything, including the logic and cavity filters having been built by Cliff, G2HIF & Geoff, G4DPA (both SK). The aerials were also home-brew being fabricated from copper tubing but it was decided that to erect these on a then small scale commercial mast was not prudent. So "commercial" aerials were bought.
If your signal into the repeater was long enough you may also have received a signal report back at the end of your transmission but that proved to be somewhat erratic.
After several iterations of kit, including a move to a new mast, most of the repeater was of commercial origin. The one item that remained Amateur designed and built was the login and of course this had to move with the times with the switch from 1750Hz tone access to CTCSS access. You of course know that the 'J' (dit dah dah dah) at the end of the ident sequence tells you what the CTCSS is? J is 118.8.
Back to the original question. I was out mobile one day – in the days when we had rigs in the car – and one of the repeaters keyed up and the gave the ok to go ahead 'K'. It suddenly dawned on me that I didn't know which repeater it was because both tones were the same frequency and both gave 'K' – and I couldn't see the rig display. It just so happened that we were doing some maintenance on WH a few days later and I remembered this so, literally on a whim, I changed the GB3WH end of transmission signal to an from a 'K' to an 'R'. As simple as that!
Since then of course the frequency of the tones has changed which makes it easier to distinguish – but the 'R' will remain.

73 Tony, G4LDL, Keeper GB3WH.

# G4XUT/M's notes July 2022

Well, its summertime and I hope you enjoying this lovely weather (at the time of writing this).Time to get the old hand portables out and enjoy the outside world whilst having a nice chat on the radio via your favorite repeaters of course.
I certainly enjoy doing that whilst walking to Coate Water, over the M4 footbridge and beyond to Chiseldon along parts of the MSWJ rail path and in the opposite direction towards West Swindon from the site of the old Swindon Town railway station site in Newport Street.I sometimes also explore the section of track from Chiseldon towards Ogbourne St. George which is a very flat section running alongside the A346 and in site of GB3TD/GB7TC & MB7UR so very good coverage along there! I was recently at the Swindon and Cricklade railway at Blunsdon and contacted Richard, G4MUF whilst operating /M (train) via GB3TD.The railway was also operating a special shuttle service from Hayes Knoll station towards Cricklade until the end of the existing track.
Whilst I was at Blunsdon station I wandered along to the museum which is just along from the Whistle stop cafe.There was a large collection of railway memorabilia in the museum but what particularly attracted my attention on this occasion was a 00-gauge model railway based on Ogbourne Station on the MSWJR which had been donated to the S&CR. The interest for me was that my wife once lived in Ogbourne St. George and went on the last train trip from there to Tidworth and back. Her Mother and Father once ran a Butchers shop in the village and with the railway at the end of the garden I for one was very envious of that.Back at the Swindon and Cricklade railway and Hayes Knoll, it great to see a Railbus (W79978) which is due to be refurbished. Only five of these were ever made and I used to travel on four of those from Kemble to Tetbury when that line was open in my trainspotting days and using my Ian Allan books long before my Ham radio hobby hi!
Whilst on the train and not in QSO, I spoke to a man who wrote a book on the Tetbury Branch line and he remembered the interesting situations on that line for example, Cattle, Chickens and sometimes people on the tracks which caused the train to pull up occasionally! Happy days and it was good to look back in history about what used to be there. Have a good Summer, now I must charge my batteries ready for the next walk.
73 Rob

The Railbus at Swindon Cricklade Railway.

Not being a Swindonian by birth I was puzzled about the proper name for the railway mentioned in Rob's article, asked him about and below is his answer, thanks Rob.

The MSWJR stands for the Midland and Southwestern Junction  Railway which went from Andover to Andoversford in Gloucestershire.
The headquarters office building is still in Station Approach off Newport Street Swindon and where the Swindon Town railway station was.
The line went from Andover through Ludgershaw, Tidworth,  Marlborough, Ogbourne, Swindon, Cricklade, Cirencester to Andoversford connecting to Cheltenham.
So it was possible to go from the Midlands to the South coast.
Pity it doesn't exist now hi!  More another day.

I must thank everyone whom have submitted articles and snippets for publication in our quarterly newsletter as it is very much appreciated, as without their help we wouldn't have a readable newsletter.There one tongue in check article from myself with an article from Robin G8VVY.

## How to run (or not) a special event station. (A Tongue in cheek approach)

I know not everyone likes to put on special events, that is an outside event even contesting could be put in this category.
Well what would be the first thing to start organising an event and what should you take into consideration. So lets look at permissions first, operators & helpers, not forgetting the NoV.
You've chosen your site from where you want to operate your special event station from, so you need to seek permission from the owner or local manager of the location, be it a building, a field or another place that you could operate from. Be prepared for hours of discussion and bickering to obtain said permission as this take's a cool head and patience.
So now you've obtained your permission and you now need to find, cajole or pressgang people to assist you to run the event.
You will need people to put up masts for antenna's, run coax from antenna to the radio's operating position. I'm getting ahead of myself as you need power from somewhere to be able to run your equipment. Does the location have a power source or do you have to supply one, oh dear I wonder if we can find a generator/!!! So you've solved your power supply problem let's go onto the next one. Before you go too far with planning this event you will need to apply for an NoV (notice of variation) from Ofcom and these days this can all be done on line, you will need a callsign that you can use GB (1/2/3/4/0) XXX and the location of the event with a grid reference, also the length of time you want to operate (in days I mean). So far this has been the easy part as you need to do a health and safety survey of the site to be used, have I got the right signs to use and were did I put my PSE (personal safety equipment). Now comes the hard part making a list of equipment you will use and if anything is borrowed make sure it is labelled so you can return it to whom it was borrowed from.It's the little things that give you the biggest headache like have I designated someone to provide refreshments, do we have a water source on site or will we have to supply our own. How can I ensure everyone knows the location of the site, did I give them the correct address and time to arrive there. So lets presume you've over come all of these issues and you have arrived on site, started to erect masts for the antenna or antenna's. Can you locate them away from the public that might access the site or cordoned them off ? Have you got Public Liability insurance cover. Let's suppose you've got everything in place, can you be confident the weather will be kind to you and not blow a Gail to ruin your day, have you prepared your shelter from the elements thoroughly so you can withstand at least a rain storm and survive. With that said have all your helpers turned up, and how long are they prepared to stay, this is the moment of truth and this is before you have transmitted a single call. So please always give a thought to to whom ever organises the SES as they have put in a lot of head scratching before the event.
Nearly forgot, what happens if you get an angry member of the public saying we are covering his area with Electro Magnetic Radiation (EMP) if your in charge you need the patience of a saint to placate the said person and yes I've heard of this but fortunately not had to deal with it.
This is not a complete list of instructions but just an over all summary of what can go on for these events to be successful.
If you need a complete list of instructions please check the RSGB website for help.

This article has been submitted by Robin G8VVY.

# RECEIVING AND DECODING SATELLITE TELEMETRY DATA

I am indebted to both Mike Rupert/DK3WN, Andrey S. Kopanchuk/UZ7HO and George Rossopoylos/SV2AGW for providing the means to achieve this, by way of their telemetry decoders, KISS frame compatible software TNC and high speed sound-modems.

I am not going into the complexities of how each of these components work but will detail what I needed to do in order to pick up and decode the data from a small, currently, number of low earth orbit satellites. The described method is for the WindowsTM operating system only.

It is also assumed that you will have already installed a suitable software defined radio and associated virtual audio cable (VAC). The VAC is necessary to 'pipe' the audio to the software packet terminal node controller which uses the computer's sound-card as a modem.

A suitable VAC can be downloaded from the Internet; e.g. https://vb-audio.com/Cable/index.htm, and installation and set-up details are provided.

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The beacons received on the satellites I've monitored have all been in the 430MHz range, and I have found that a 2 element 70 cm HB9CV has been more than adequate for the job.

I have to point out that all reception is carried out indoors, in a coach house, with the antenna hand held and accurately 'pointed' according to the relevant pass details … which can be found from a number of different websites.

My computer is an i3-3220 CPU with 4Gb RAM and this is sufficient to run my SDR software of choice – HDSDR – and an inexpensive RTL-SDR – the Nooelec SMART IV.

One function of HDSDR, without which all this would be virtually impossible, is the fact that you can record the received AF and then – at your leisure – replay it, convert it to ASCII and then decode it at a later time.

It is not critical as to where the FM discriminator centre frequency is set as this can be adjusted when playing back the recorded wav file.

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I'll now describe the various files and software packages that I needed to install.

NOTE: I always virus check any data retrieved from the Internet regardless of its source!

As Mike/DK3WN's programmes have been written in MS VB6 and compiled for 32-bit Win, it might be necessary to install MS VB6 run-time files. VB6 is still currently supported by MS.

More critical, I found, was the need to install a number of ActiveX controls, which can be found at Mike/DK3WN's website at dk3wn.info.If you are running a 64-bit Windows version – I use 64-bit Windows 8.1 in this instance – you need to place the downloaded .OCX files in the C:\Windows\SysWOW64 folder.

Each file needs to be registered in the Windows registry server – using regsvr32 – and the programme version needed when registering 32-bit .OCX files on a 64-bit OS is the regsvr32 found in the C:\Windows\SysWOW64 folder.

This is done in command line and you need to run CMD as an administrator – right-click and select ‘Run as administrator’ – then from C:\Windows\SysWOW64 execute regsvr32 filename.ocx for each file.

Next come the various packages, each of which can be found where indicated:

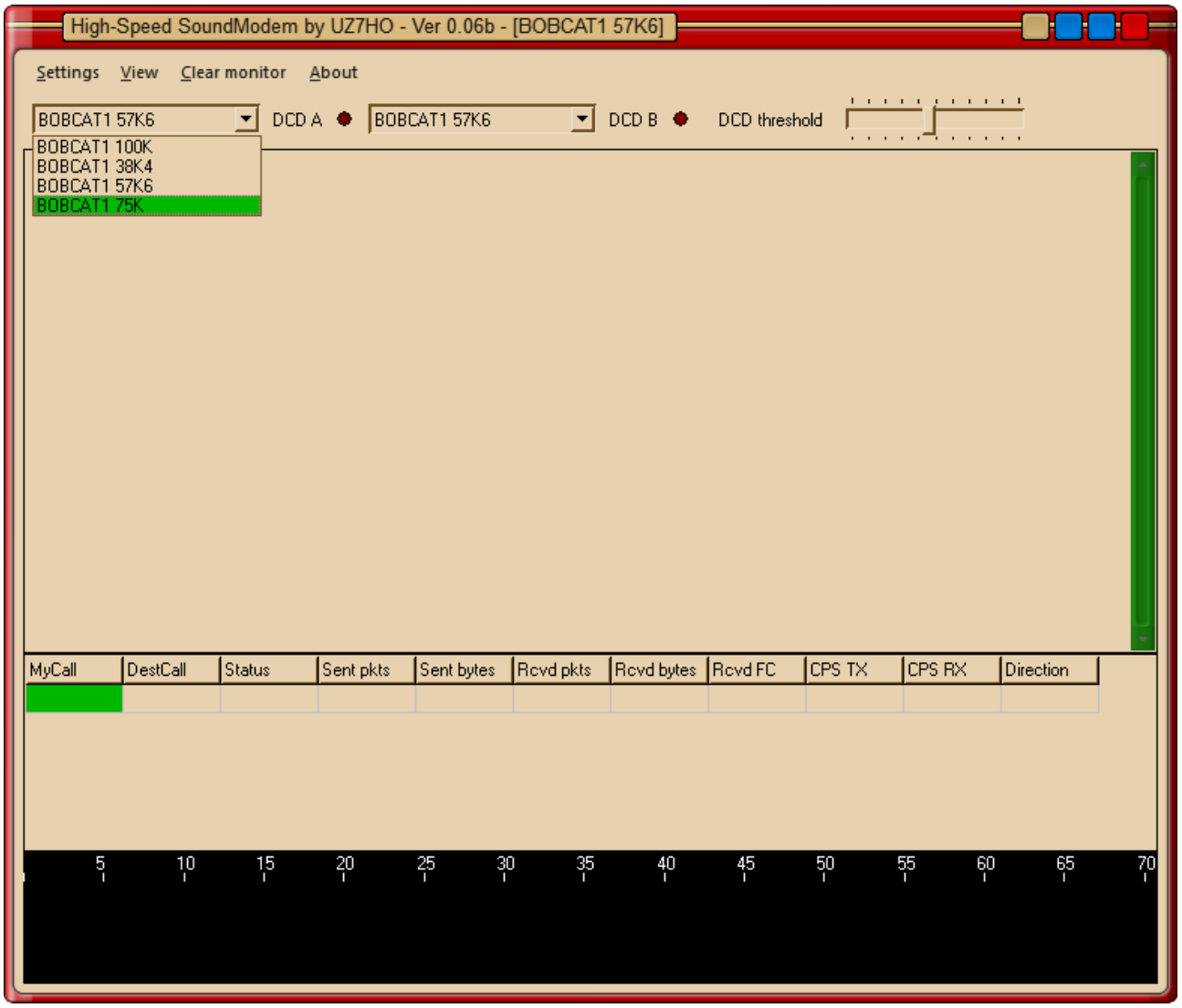
**High Speed Sound-modem**

This is a dual channel/port packet terminal node controller (TNC) that uses the computer's sound-card as a modem. There are a number of different 'flavours' on Andrey/UZ7HO's website and you will need to choose the right one for the intended satellite.

| | | |
|---|---|---|
| Bobcat1 | 22/12/2021 08:32 | File folder |
| BPSK-9K6 | 22/03/2021 18:43 | File folder |
| DIY1 | 22/05/2021 10:00 | File folder |
| dstar-one | 14/02/2019 20:38 | File folder |

BOBCAT-1 is one that I managed to receive and decode, and JAISAT-1 – using Mobitex, a narrowband short burst data packet – will work with the DSTAR-ONE sound-modem.

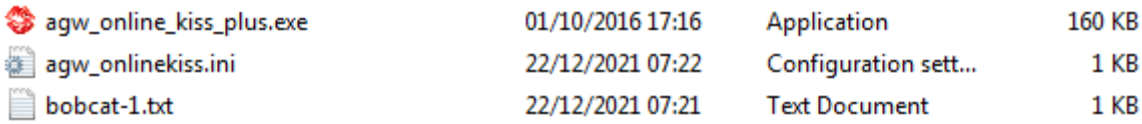
The only settings I needed to check/adjust were the baud rate one, only on Channel 'A', and the decode threshold level.



**AGW Online KISS+**

This works alongside the high speed sound-modem from Andrey/UZ7HO and enables decoding of the AX.25 packet format telemetry in KISS mode. The .KSS files can then be decoded using Mike/DK3WN's programmes.

AGW Online KISS requires a small amount of configuration once installed.




There are an associated .INI and .TXT file.

This is my modified .INI file:

#
# This is the ini file for AGW_ONLINEKISS plus v. 3.2
#
#
PORT = 127.0.0.1:8000
#
# MIRROR_COM_PORT = 7
# MIRROR_COM_SETTINGS = 9600,N,8,1
#
***FILE_PATH = c:\users\XXXXXXXXXXX\downloads***
#
TIMEFRAMES = YES
LOGFILE = NO
PAYLOADFILE = NO
#
***CALLSIGN = G8VVY-15***
#
# use QTH height in km
#
***QTH_LAT = 51.4866***
***QTH_LONG = -1.757***
***QTH_HEIGHT = 0.092***
#
TLEFILE = C:\Users\XXXXXXXXXXX\Downloads\agw_online_kiss\jaisat-1.txt

I did not need to change any of the lines except for those that are highlighted.

The TLEFILE line refers to the two-line element set providing the satellite orbit details. These can be found from various sources on the Internet, including Mike/DK3WN's site.

This is my modified .TXT file:

JAISAT-1
1 44419U 19038F 21345.42220444 .00001726 00000-0 96789-4 0 9999
2 44419 97.6129 309.7844 0022289 63.6401 296.7115 15.14559073134577

This being the relevant TLE data for the JAISAT-1 satellite.

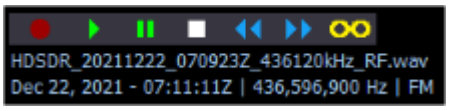
Once you have a copy of the AGW Online KISS+ files, it's easy to just copy the folder for each

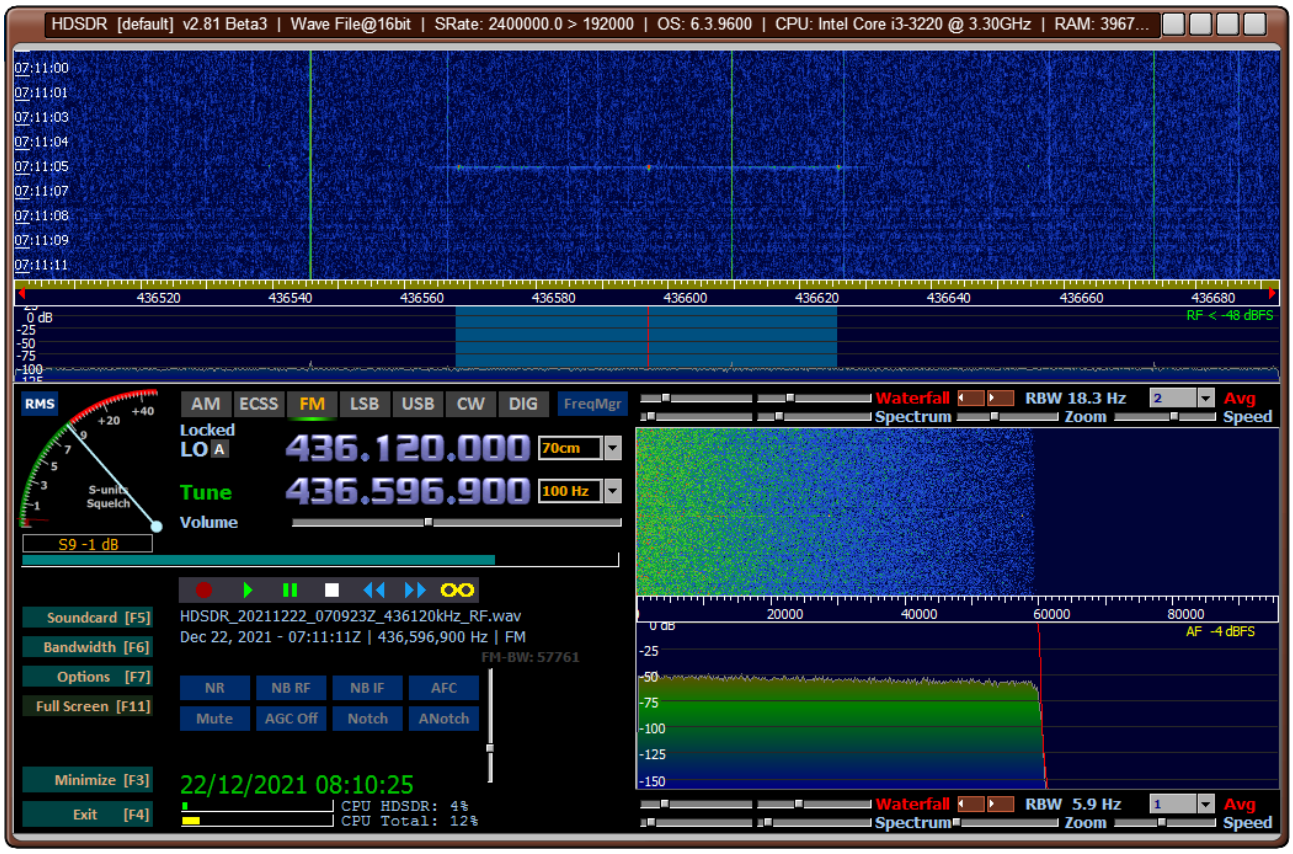
different satellite you wish to follow and rename it accordingly.

**Telemetry Decoder and overall procedure**

There are a huge number of these decoders on Mike/DK3WN's website and so it's just a case of installing the correct one for the satellite in question.

Once you are ready to receive the satellite telemetry, be sure to remember to start the AF recorder!




In HDSDR the .WAV files are stored under 'My Documents' in a sub-folder called 'HDSDR'.

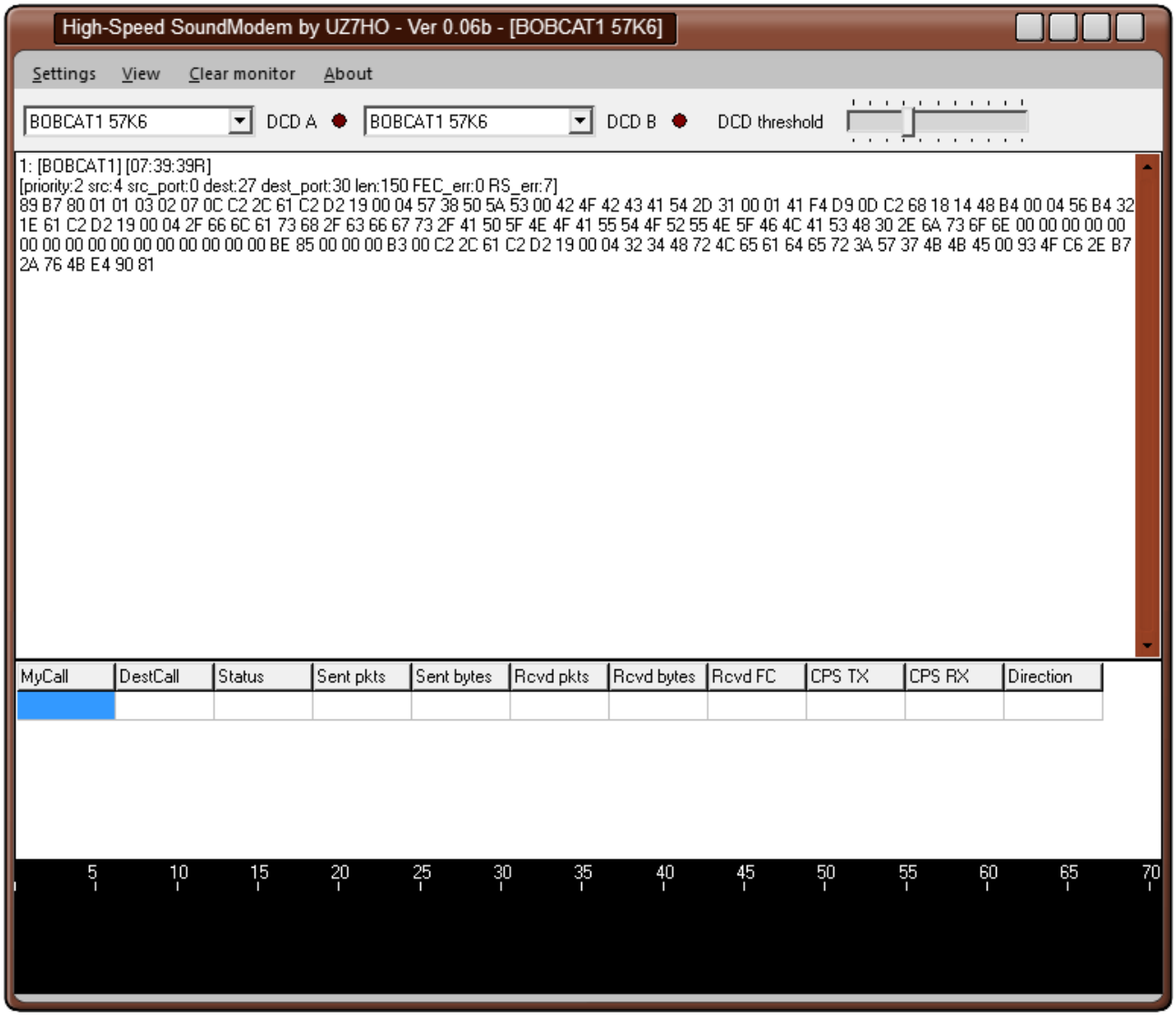
They are quite large and once the file-size reaches 1.86Gb, a new one is written, so you will need to be aware that storage space is used up quite quickly! Once I've finished decoding I usually delete the associated audio files.

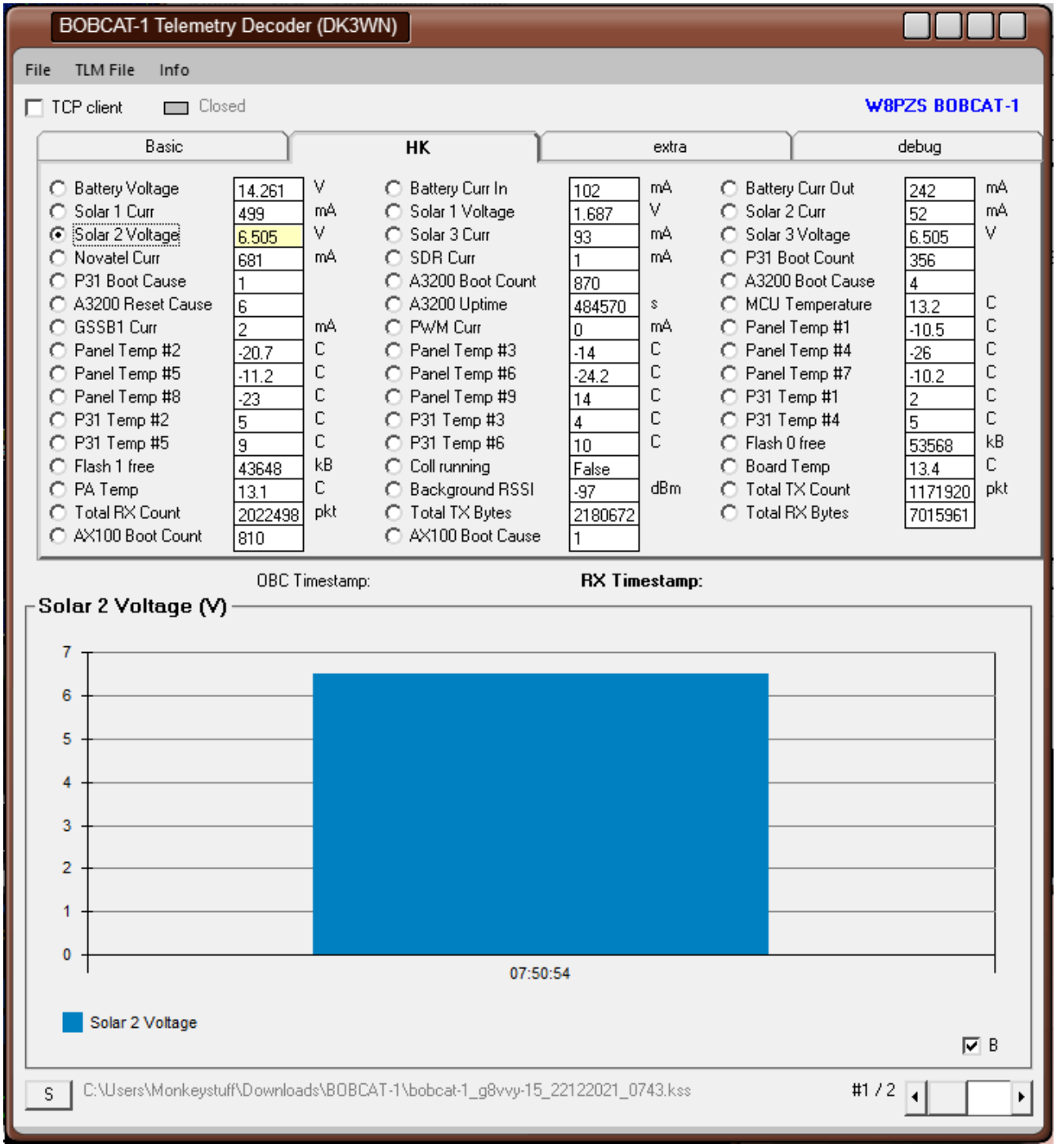
Once the pass has completed, and you have hopefully seen some traces – see above example - you can re-play the relevant .WAV files and adjust the bandwidth and centre frequency correctly to enable the relevant HS Sound-modem to convert the audio to create a KISS file. The KISS files are stored in a folder, which is automatically created the first time the programme is run, as .KSS extension files. The folder will be appropriately named as per the satellite.

NOTE: AGW Online KISS+ and HS Sound-modem communicate over localhost port 8000 which you may need to allow in Windows firewall, or which you may already be using elsewhere. If it's in use, the relevant .INI file would need to be modified.

I usually carry out the above adjustments with the computer speakers still connected as the

receive audio device, then I switch to the Virtual Audio Cable in order to send the signal to the sound modem.
With AGW KISS+ and HS Sound-modem running you should see the data hex dump appear in the UZ7HO window:




and a .KSS file in the newly created folder:

Then it is just a case of running the relevant telemetry decoder to convert the raw .KSS hex to readable formatted text.