UOSAT-2 DISPLAY STORAGE AND DECODING PROGRAMS

IMPORTANT !! BEFORE USE MAKE A BACK-UP COPY OF THE PROGRAM DISK.

The disk contains the following files

UOSAT	Display and stogage program
UOSAT6	Display only program
U2TM	ASCII telemetry program
U2PKT	Packet telemetry, SEU, and ENG display program
ASCTM	ASCII telemetry data
TLM	Packet telemetry data
SEU	Packet SEU data
ENG	Packet Engineering frames data

COMPUTER REQUIREMENTS.

BBC B, 32K
Monochrome display
BASIC 2
OS 1.2
DFS ... Acorn or Watford 1.43

UOSAT DISPLAY AND STORAGE PROGRAM.

This program evolved from Trevor Stockhill's program, published by AMSAT and UOS. The program disk contains two versions of the program.

UOSAT6	Display only. Similar to original, but with choice of Cassette or serial port for input.
UOSAT	Includes data storage on disk, and printer control. The display can be toggled between TEXT and HEXADECIMAL, which is useful for looking at UOSAT packet data.

UOSAT displays, prints, and stores satellite data from a cassette or via a decoder. Better results are obtained if a decoder is used. However in practice due to the characteristics of FM, the signal quality changes very rapidly from good to poor and therefore the decoder has little opportunity to show its enhanced performance with marginal signals. A decoder must be used with UOSAT_1, as tones for ones and zeros are inverted on this satellite. The Jim Miller decoder is recommended (details from AMSAT-UK).

LOADING AND OPERATING INSTRUCTIONS.

CHAIN "UOSAT"

The program lets you choose a cassette input, otherwise it uses the serial port. The menu displayed has the following options -

1. Display only
2. Display and store bulletin, TM or WOD
3. Display and store DCE data.

I usually record UOSAT signals on tape, and then replay into the decoder, or directly into the computer. The tape can be started, stopped, or rewound, to allow you to read the screen. When the tape is running the following keys are active -

H Toggle display between TEXT and HEX
B Start printing
C Stop printing
Q Quit

In the storage modes the following additional keys are active -

S Start storage
D Stop storage (ie. display only)

Note that these keys only work when characters are going into the input port.

DISPLAY AND STORE (menu option 2)

This option allows you to store UOSAT text data on the disk. Unwanted control characters have been removed from the ASCII data which may then be edited by WORDWISE. It is suitable for telemetry, WOD, or the bulletin, but not for DCE messages, or packet data frames.

The default file name is UDUMP. The program lets you use other names if required. I usually find it best to use UDUMP, and then rename it using *RENAME. The code I use is n.UmDxxxB/T/W/K, where n is the year, m is UOSAT number, xxx is day number, B = bulletin, T = telemetry, W = WOD, K = Keplers. Eg. 8.U1D305W means UOSAT1,year 1988, day 305, WOD

DISPLAY AND STORE (menu option 3)

This option allows you to store the raw data from UOSAT. The stored data contains control characters which prevent it being edited by WORDWISE, but which are needed for the packet data frames. The default file name is RAW.

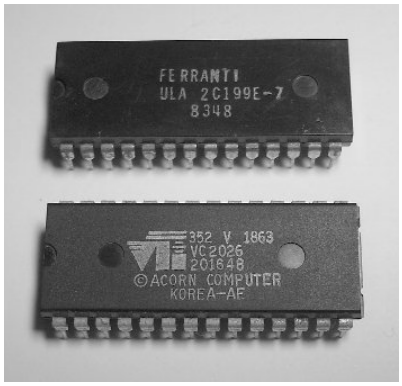
NOTES ON STORAGE.

a) Storage does not start until you press the S key.

b) Make sure that the disk has sufficient room to allow the data to be stored. Compact the disk if any files have been deleted. Do not overwrite a file, unless it was the last one written, as only the last file can be extended. You can check the order of files on the disk by using *COMPACT.

c) Do not use the ESCAPE key to exit from the program. Always use Q. If you do use the ESCAPE key, you must then close the file by CLOSE£ 0, press shift-break, and then reload the program.

Additional software for VLSI SERPROC owners



The BBC Micro is fitted with one of two types of serial processor: the Serial ULA by Ferranti (top) and the later SERPROC chip by VLSI (bottom). This can be found in socket IC 7, next to the cassette socket at the back of the computer.

The SERPROC was revised to accept either normal or inverted modulation of data on the cassette port, and therefore machines with this chip fitted can read telemetry from both UoSAT-1 and UoSAT-2 without an external demodulator.

However, to accommodate selection of the modulation sense, the SERPROC's control register was modified causing compatibility problems with some software, including the original *UOSAT* program on this disk. Whereas the Ferranti ULA can only decode UoSAT-2 streams, *UOSAT* programs the SERPROC to decode recordings of UoSAT-1 only.

To address this problem and exploit the SERPROC's extra feature, a new version of the *UOSAT* program, named ***VLSI***, is included on this disk.

Operating instructions for *VLSI* are the same as for *UOSAT*, except that while characters are being decoded, the user can press **V** to switch between 'Acorn' modulation as used by UoSAT-2, and 'V.1' modulation as used by UoSAT-1. The program starts by using UoSAT-2 modulation.

The *VLSI* program also runs on computers with the Ferranti ULA, but the **V** key will have no effect while receiving, and only UoSAT-2 transmissions will be displayed, as before.

Greg Cook
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DECODING ASCII TELEMETRY

This program was described in OSCAR News 95 (June 1992) page 26

LOADING AND OPERATING INSTRUCTIONS

CHAIN "U2TM"

You will be asked for the name of the data file. Enter ASCTM for the demonstration. When the program has found a good frame header it will show the time, date, and file pointer. Press Y to get analogue telementry. Press space bar to show each group of items. At the end of telemetry, you may select STATUS telemetry if required.

At the end of a frame you can proceed to the next frame, or you can go to any another frame, if you know the file pointer (previously displayed).

The program can easily be modified to include more or less analogue channels.

DECODING PACKETS

This program was outlined in OSCAR News 97 (October 1992) page 35.

LOADING AND OPERATING INSTRUCTIONS

CHAIN "U2PKT"

You will be asked for your file name. For the demonstration TLM, SEU, and ENG are provided. The menu will then let you select the type of data you wish to display, ie. Telemetry, Single Event Upsets, or Engineering frames.

If you don't know what is in the file, option 4 will display the type of frames, and their position in the file (file pointer).

Option 5 will let you change the file pointer. Option 6 will let you select another file.

These programs are given to the Public Domain for the benefit of all interested in Amateur Radio Satellites.

If you require further details of Amateur Radio Satellite please send a large SAE to - AMSAT-UK, LONDON E12 5EQ.

If you have any comments on these programs, please write to -

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If you require a reply, please enclose an SAE.

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