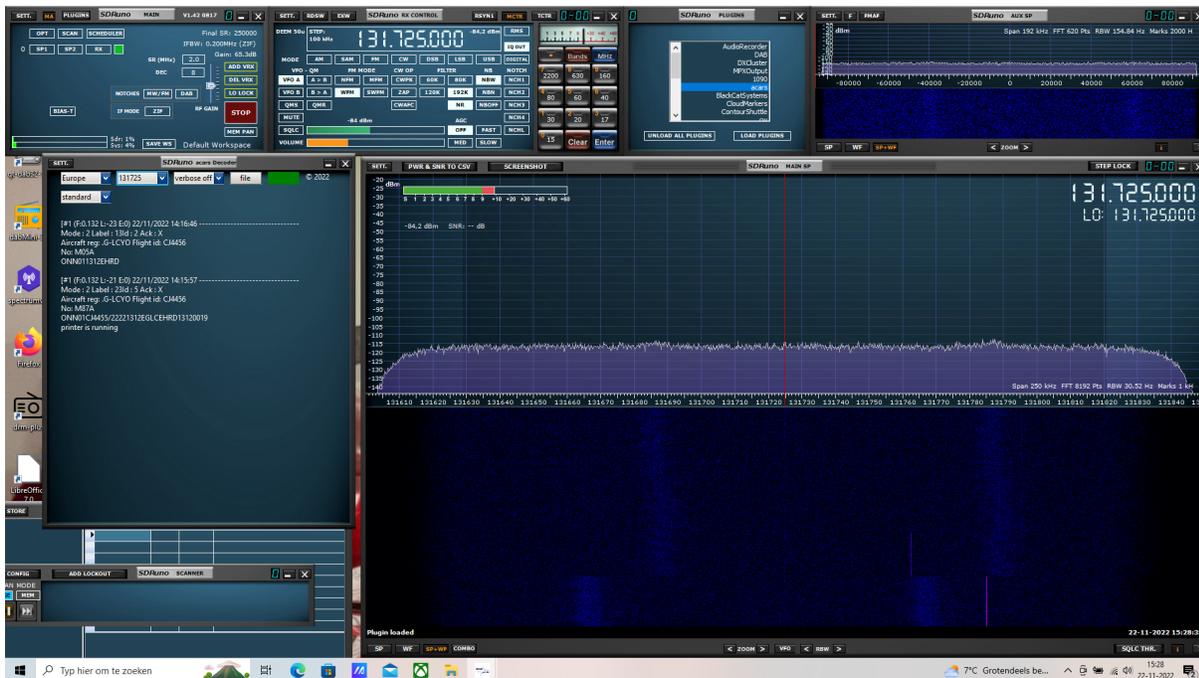


An experimental plugin for decoding Acars small user's guide *

Revised edition of the plugin

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December 11, 2022



1 The Plugins

Acars stands for *Aircraft Communications Addressing and Reporting System*, a digital datalink for transmitting short messages between aircraft and ground stations. There are two plugins, one for decoding a single channel, the other one for decoding multiple channels are the same time.

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The software is heavily based on the acars decoder in C, written by *Thierry Leconte*. A few years back, I added support for SDRplay RSP's (using the "old" version 2 of the support library), and somewhat later I rewrote the decoder software in C++.

It should be emphasized that the SDRuno plugins for acars decoding uses both the implementation of the Msk decoding and the printer functions are (almost) taken literally from Thierry's work and fall under his copyright's terms.

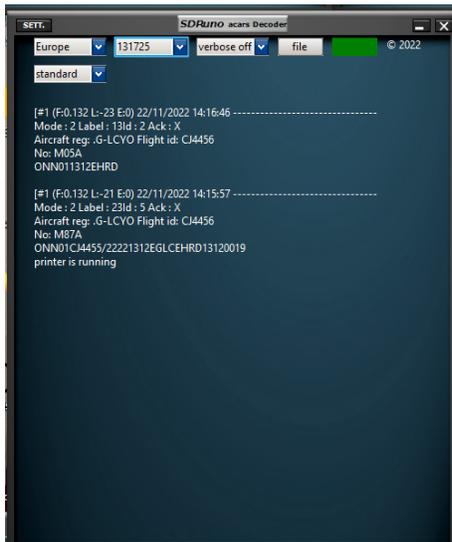
2 Disclaimer

The title reads *experimental*. In my environment there is a small regional airfield where the number of flights is - since corona - extremely limited so testing the plugin is not to the level I am used to. The software may contain errors or other strange effects. Feedback is of course welcome.

3 Overview of the plugins

Transmission frequencies for Acars differ from continent to continent, Usually there is a main frequency and possibly a number of latervative frequencies per continent.

3.1 SDRunoPlugin_acars, the single channel plugin



In this plugin a single channel can be selected by the channel selector. To support use in different continents, the plugin has a continent selector. On selecting a continent, the channel selector will be set to contain the relevant frequencies for that continent, with the main frequency as first option.

The plugin uses the IQOUT entry of the SDRuno environment, which gives a samplerate of 192000 IQ samples per second.

The setting for the continent will be maintained between invocations of the plugin.

Other selectors are

- dump selector. If activated a file menu shows where a filename can be given. All output will be saved in the file, until the file is closed by either touching the dump selector again, or - obviously - if the plugin is halted. If dumping is selected, a small label will change color from green to red.
- output selector. With this selector one may choose different styles of output.

Since the size of widget is limited, only the most recent 30 to 35 lines are displayed.

3.2 SDRunoPlugin_acars_M, the multi channel decoder



The origin code of Thierry supports decoding multiple channels - as long as the channels fit within the bandwidth supported by the device. For SDRplay devices, the selected rate is 2000000 samples per second, with the width of the built in filter of 1536000 samples per second, which leaves room for selecting more than one channel.

As an example, in Europe, the frequencies are 131525, 131725 and 131825 KHz, so spanning 300 KHz.

Selectors are:

- the country selector. The country selector selects a range of frequencies, known to be used for Acars communication in the country. In case of the US and Canada, the range of frequencies is too large to fit within 1536 KHz, so the frequencies for these countries are split up in two. So, there will be "USA_1" and "USA_2" (same for Canada).
- the label to the right of this selector specified the frequencies covered.
- on the second line left, there is the "verbose" selector, touching it, something that caused the previous version to crash, will set - or unset- a switch that, when set gives some additional information, mostly on errors.
- on the second line, next to the "verbose" button, one finds a file selector. An output file can be selected and textual output will be saved then into this file.
- the last selector on the second line is the "output" selector, one may choose now between "standard", one line, and monitor like output.

4 Copyright

As mentioned, parts of the software are copyrighted to Thierry Leconte, Other parts I do have copyrights.

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