Application Note - AN 116 / 6-A

Analyzing Port 30003 (Format 6) CSV messages

1 General

Format 6/Port 30003 (see AN 116/6) is a plain language ASCII CSV format. For every raw data Mode-S and ADS-B packet received a decoded ASCII CSV formatted message will be transmitted over existing TCP conenctions. The number of connections is per se not limited.

2 Performance considerations

Format 6 CSV outputs are a very inefficient translation of raw data packets. While Mode-S packets are 56 bit = 7 byte in length and ADS-B packets are 112 bit = 14 byte in length, a resulting Format 6 CSV frame usually extends over 90 bytes and more.

In high density traffic areas raw data packets rates up to 1,800 packets/sec can be seen. This translates into a continous data stream of 1,300 kBit/sec and more.

Recording and analysing such data stream needs to take into consideration processing time span and potential overflow of network stacks and buffers.

3 Recording the data stream

In order to avoid data losses it is recommended to use TCP functions from the client's operating systems without any unnecessary overhead.

For Windows it is recommended to use a Telnet client

- Open a command line window
- Extend the command window to 160 characters in width or wider (select "Properties" menu item)
- Start the Telnet client: **telnet <ipofdevice> 30003 -f <filetosavetodisk>**

Data will be continously recorded to disk until the window is closed.

4 Using *log30003* application

log30003 is an application to

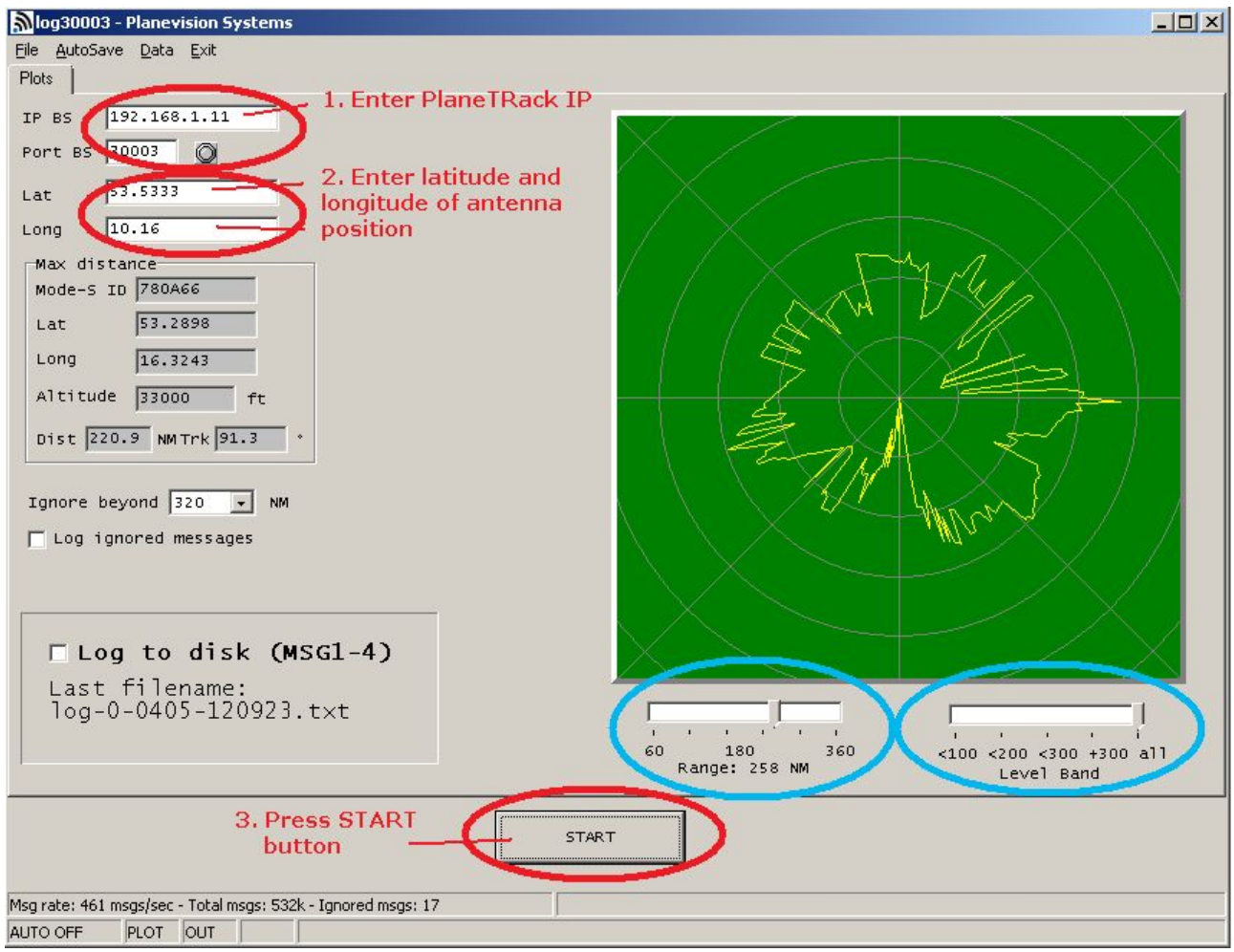
- performa antenna pattern checks
- record format 6 MSG1-4 only

In order to perform internal analyzing tasks and to avoid buffer and stack overruns *log30003* may drop data packets from the pipeline, i.e. it is not guaranteed that all data packets received are recorded and/or analyzed.

Only one of the two functions can be run at the same time from one instance of *log30003*. **However two instances of *log30003* can be run in parallel, e.g. one analyzing antenna patterns and the other recording data.**

4.1 Analyzing antenna patterns

Execute *log30003.exe* and setup as depicted below. Then press the START button. The antenna pattern will be shown on the Radar scope.



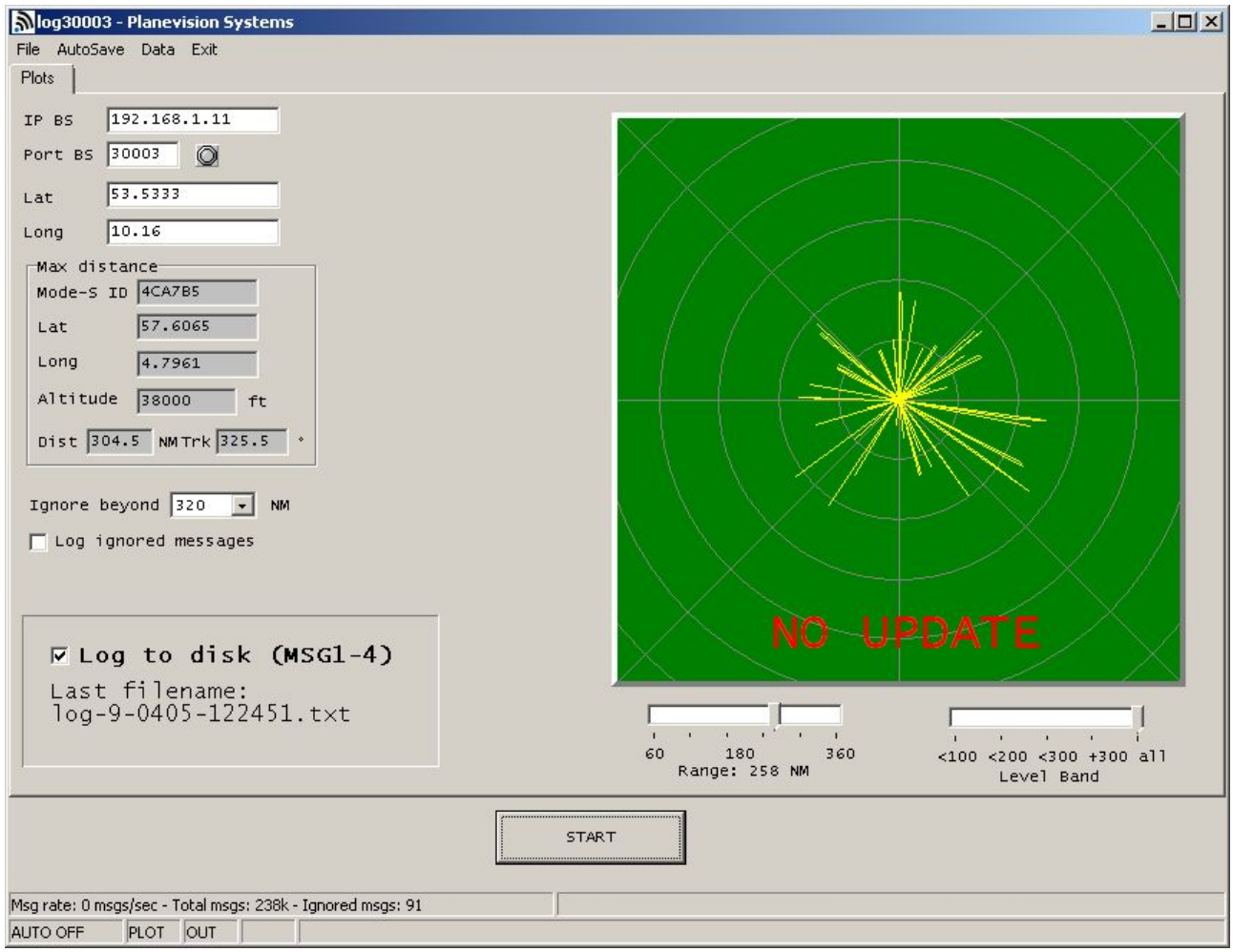
- Use the "Range" slider to zoom in/out the pattern display. Every range ring is 60 NM.
- Use the "Level band" silder to analyze level bands between ground and indicated upper flight level.

4.2 Save data to disk

log30003 facilitates data logging by saving packets up to a limited file size only. Each data file contains a maximum of 250,000 data packets, which equaly ca. 5,000 kBytes.

Filenames contain a consecutive number since application start and the UTC of file creation.

Setup of IP adress and home position shall be done equivalent to section 4.1



- Please note that during data logging the pattern analyzer will not be update.
- Only MSG types 1 to 4 are recorded to disk.
- Depending on processor performance packets may be saved distorted or dropped.