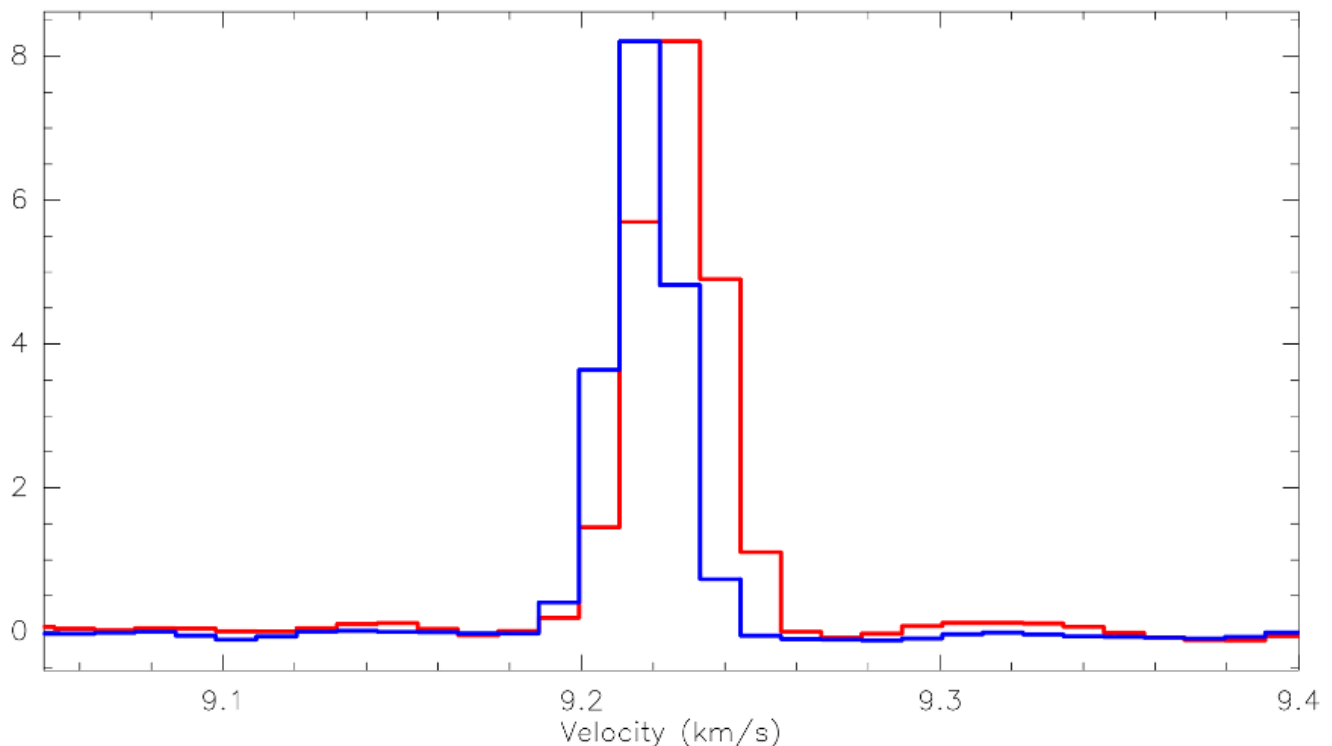


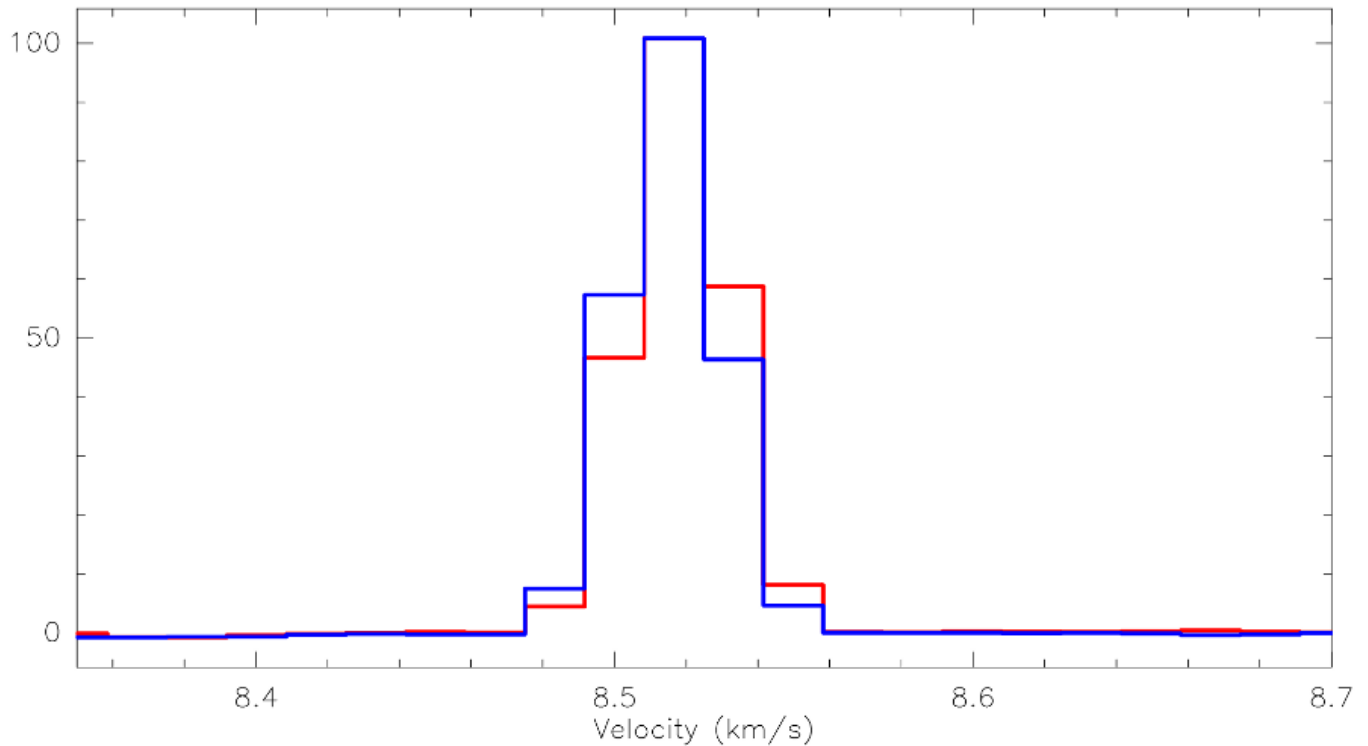
High spectral resolution observation of transitions in the LSB and USB mode of receivers revealed a shift of 0.5 channel towards lower or higher frequency depending on the version of the receiver (which defines the number of IF flips of the spectrum). The reference channel was always set to $(N+1)*0.5$ (N: Number of channels). If the spectrum was not flipped it has to be $(N*0.5)+1$ (N: Number of channels), if it is flipped $N*0.5$ (N: Number of channels).

This problem has been fixed in the control software. Below you can see two example spectra showing measurements in LSB/USB (in blue and red color) before and after the fix.

```
1; 1 TEST      NONE      P10MM01-FF01 0:21-FEB-2011 R:31-MAR-2011
RA: 00:38:04.00 DEC: 47:00:00.0 Eq 2000.0 Offs: +0.5 -0.1
Unknown tau: 0.000 Tsys: 6. Time: 0.13 min El: 55.4
N: 13106 IO: 6553.50 VO: 0.000 Dv: -1.1260E-02 LSR
FO: 32501.0000 Df: 1.2207E-03 Fi: 0.00000000
Bef: 0.79 Fef: 0.90 Gim: 0.000
H2O : 0.000 Pamb: 976.8 Tamb: -3.3 Tchop: 0.0 Tcold: 0.0
Tatm: 0.0 Tau: 0.000 Tatm i: 0.0 Tau i: 0.000
Scan: 5686 Subscan: 1
```



9; 1 3C123 NONE P13MM01-FF01 0:31-MAR-2011 R:31-MAR-2011
RA: 04:33:55.20 DEC: 29:34:14.0 Eq 1950.0 Offs: +0.3 -0.2
Unknown tau: 0.000 Tsys: 37. Time: 0.25 min El: 49.9
N: 14334 I0: 7167.00 V0: 0.000 Dv: -1.6634E-02 LSR
F0: 22000.6250 Df: 1.2207E-03 Fi: 0.00000000
Bef: 0.79 Fef: 0.90 Gim: 0.000
H2O : 0.000 Pamb: 976.9 Tamb: 10.6 Tchop: 0.0 Tcold: 0.0
Tatm: 0.0 Tau: 0.000 Tatm i: 0.0 Tau i: 0.000
Scan: 1360 Subscan: 1



If needed this problem can be fixed for old measurements using the newest version of the EffelsbergSpecPipeline using the fixFFTSRefChannel() command:

[offline_spectroscopy_pipeline_classwriter](#)

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