



Resolution and Mass Alignment Guide from ESS Courtesy of the ESS Quadrupole service web site

<http://www.quadropoleservice.com>

Setting Resolution on ESS GeneSys and ecoSys instruments:

Resolution is set from software using the Tune-MS program.
To launch the program, double click the Tune Instrument Icon from your desktop.

From the Tune instrument main page, select Tune, Mass Scale from the menu options.

The system will begin to scan two small mass regions. Adjust the settings so that you can view the mass 18 peak and a high mass peak. Typical settings might be:

	Region 1	Region 2
Start Mass	12	80
Width	12	12
Speed	1s	1s
Gain	1e-7	1e-10
Decades	2	2

Adjust the settings so that you can see peaks from the water group and your high mass sample (Krypton, Xenon or PFK) in each window.

Set the resolution control dac value to give approximately unit mass resolution at both ends of the spectrum. The control adjusts between 0 (no transmission) and 200 (full transmission) with typical resolution at a setting of around 50.

Please see the examples on the following pages for correct adjustment.

Once resolution is set, you may adjust the mass position.

Located below each window is a set of buttons and a small graph showing the Offset and Slope settings.

Adjustment Controls:

- < Gives a small DAC step towards low mass
- << Gives a large DAC step towards low mass
- > Gives a small DAC step towards high mass
- >> Gives a large DAC step towards high mass

There is a set of controls below each mass window. Note that the controls interact slightly.

Begin by adjusting the low mass controls up or down until the mass 18 peak is aligned centrally over the mass 18 position. Clicking left will give a cross-hair cursor to help you.

Repeat for the high mass region.

If you have to adjust any region by more than 0.6AMU, re-check both regions after initial adjustment.

See the following figures for guidance.

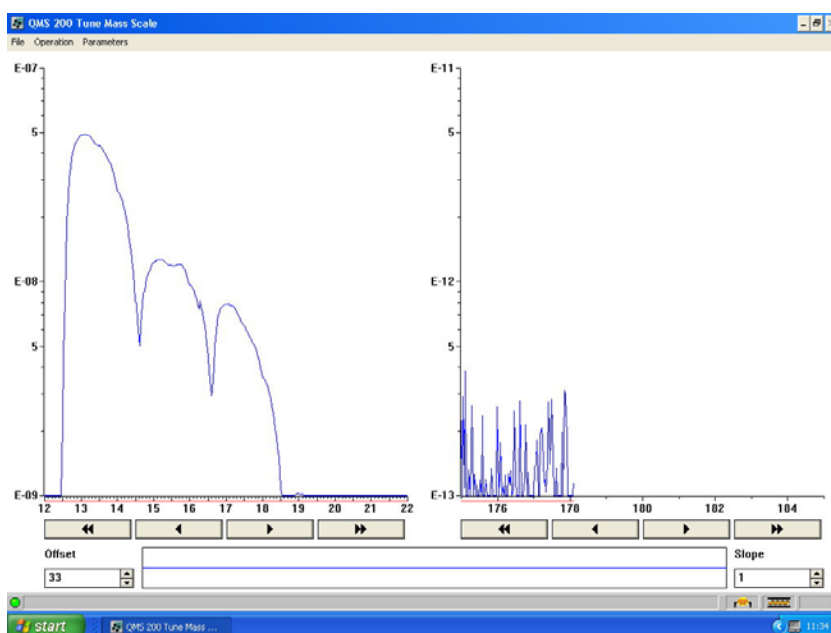
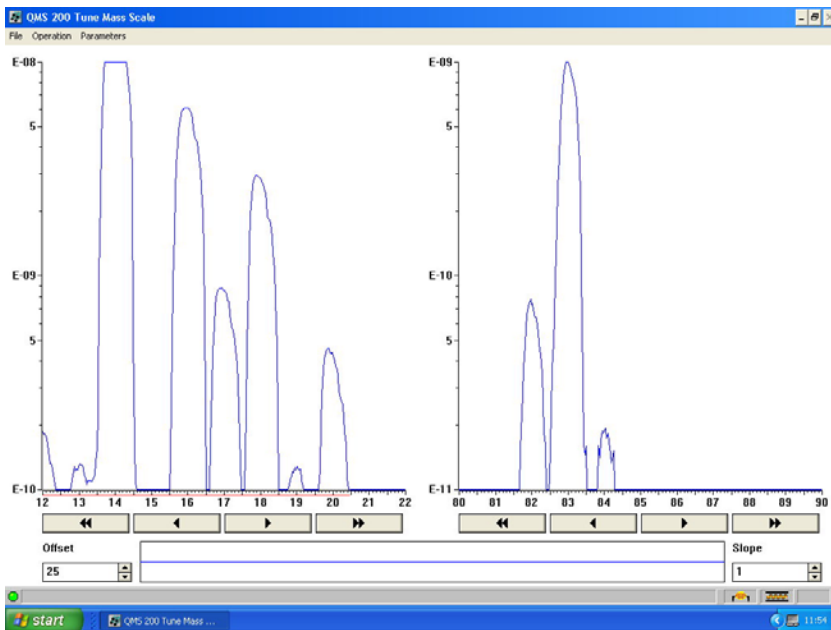
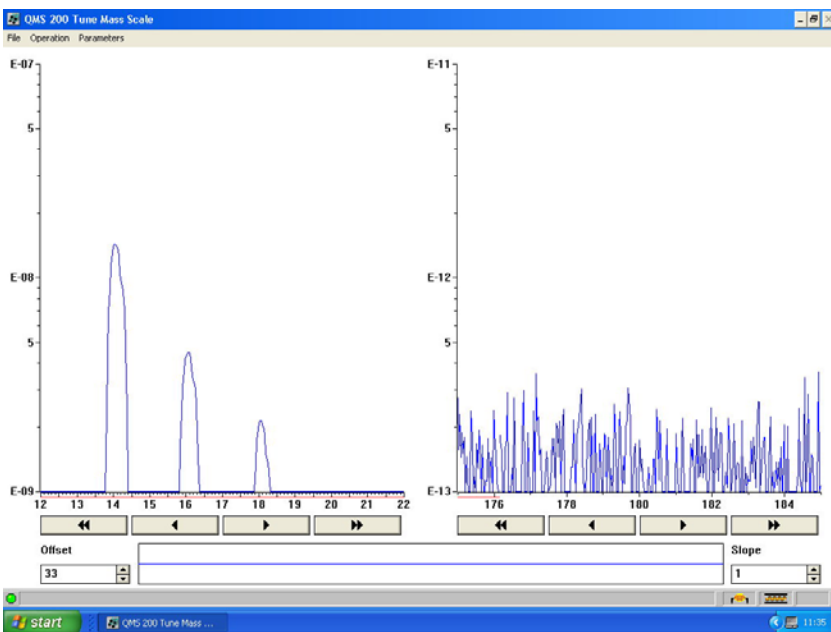


Figure 1 Example of Under Resolved mass peaks. Peaks are broad and there is no definition between adjacent masses.



Normally resolved mass peaks
The peaks are well defined and rounded. They are just under 1 AMU wide and show 10% valley resolution.



Example of over resolved mass peaks.
Peaks are sharp less than 1 amu wide.
There is baseline definition between adjacent peaks.

Adjusting VG Quadrupoles® 100, 200 and 300 AMU instruments in the:

Arga
Micromass
Sensorlab
SX200
Monitorr
ESS Minitorr
HeadBuffer
Spectralab
Instrument Ranges

Adjustment of these instruments is via pre-set potentiometers inside the RF head. Procedure is similar for each instrument although location of the adjustments is determined by mass range. Refer to the examples on previous pages for accurate resolution settings.

Refer to the diagrams on the following pages for location and function of the pre-sets.

**** NB dangerous voltages are present with the RF generator units, adjustment should only be carried out by competent fully trained personnel ****

Adjustment Procedure (Resolution):

Procedure remains the same for all RF types.

You will require a high mass and low mass sample such as the water peak group and Xenon or PFK.

Set the instrument to display a low mass group.
Adjust the Delta M control for correct resolution

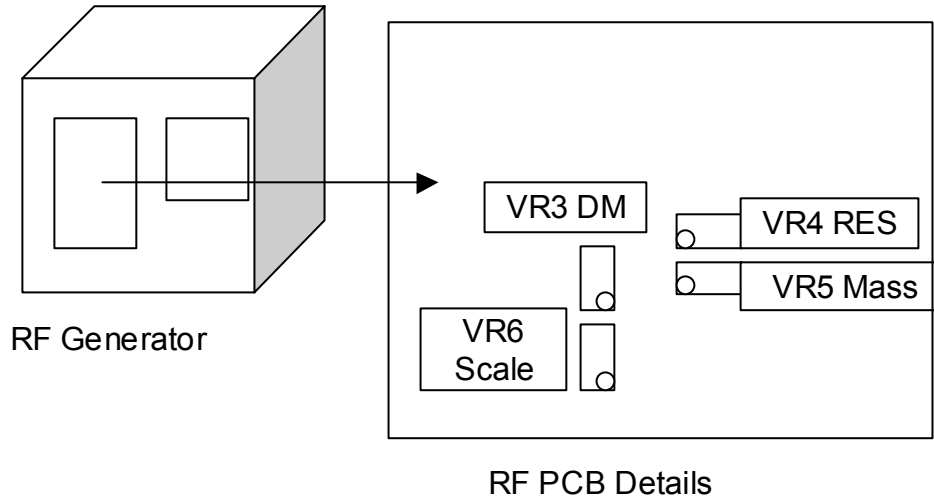
Set the instrument to display a high mass group
Adjust the Res control to set resolution.
Re-Check and re-adjust both mass regions if necessary.

Adjustment Procedure (Mass-Scale):

Set the instrument to display a low mass group.
Adjust the Scale control for correct alignment.

Set the instrument to display a high mass group
Adjust the Mass control to set alignment.
Re-Check and re-adjust both mass regions if necessary.

VG 200 and 300 AMU RF



Generators

VG 100AMU RF Generators

