

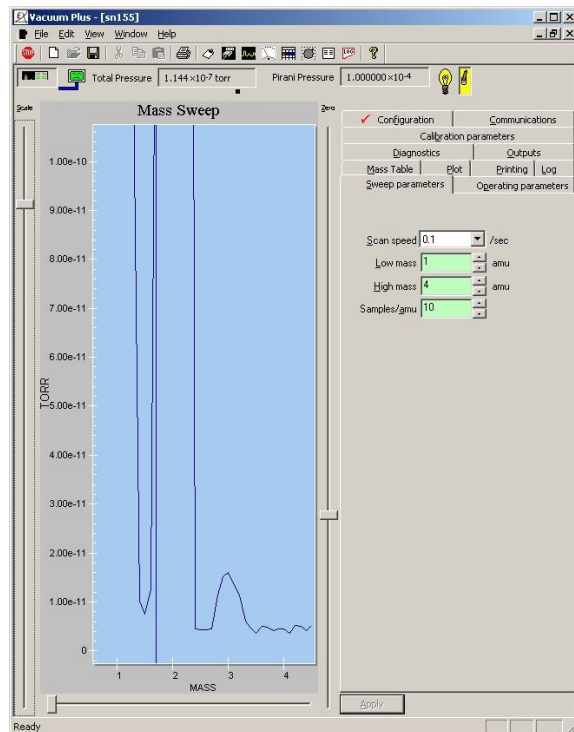
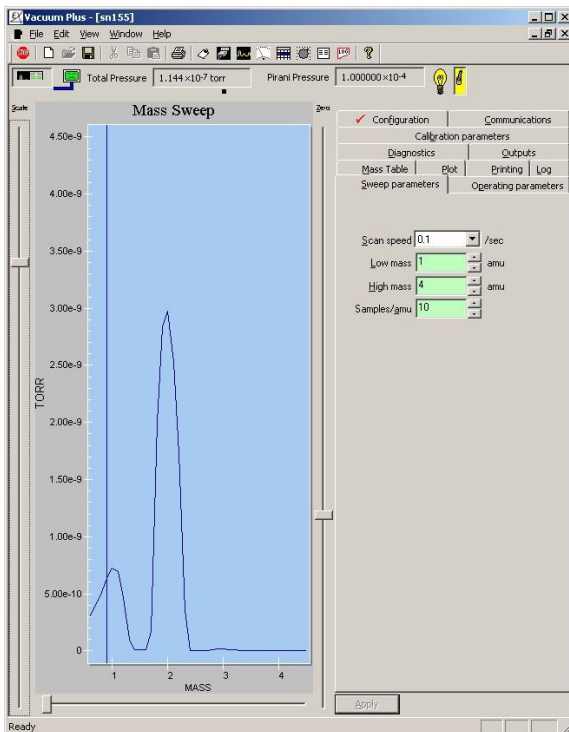


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## Application Note Number 9: An Honest Mass 1

**Abstract:** Most Quadrupole RGAs and magnetic systems that have mass ranges above 100 amu have difficulties getting down to mass one. The Extorr XT Series unique electronics design allows for an honest mass 1.

If you look through the mass spectrometer and residual gas analyzer literature, you rarely find mass spectra taken down to mass one and often not even to mass 2 or 3. Mass spectral libraries, even those from highly respected sources such as NIST often do not report masses from organic compounds below mass 10. Common sense would argue that any molecule loaded with hydrogen atoms will produce protons upon electron impact. So why are these peaks not reported? It surely cannot be for lack of interest. If done properly, the intensity of these peaks may prove crucial for compound identification. The answer is that most quadrupole systems do not resolve these low mass ions very well. It requires precise regulation of the RF and DC voltages over three orders of magnitude. Most RGA manufacturers can not. The Extorr XT Series does.



The spectra above from an ion pumped system shows data for masses 1, 2, and 3 at two intensity scale settings.