

# QQQ Tune and Checkout Guidelines

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## EI Standard source without controlled iris

### Tune Report

- M/z 69, 264, and 502 base peak mass axis should be within +/- 0.1 AMU of target on both quads.
- M/z 69, 264, and 502 isotope mass axis should be within +/- 0.2 AMU or target on both quads.
- M/z 69, 264, and 502 peak width at 50% should be 0.7 +/- 0.1 AMU on both quads.
- M/z 69 isotope ratio should be around 1.1%.
- M/z 264 isotope ratio should be around 5.8%.
- M/z 502 isotope ratio should be around 10.0%.
- M/z 69 is normally around an abundance of 700K on MS1 and 1.4M on MS2. Anything less than 150K would be alarming.
- M/z 264 is normally around an abundance of 140K on MS1 and 220K on MS2. Anything less than 25K would be alarming.
- M/z 502 is normally around an abundance of 25K on MS1 and 12K on MS2. Anything less than 2K would be alarming.
- M/z 69 should always have a relative abundance of 100%.
- M/z 264 relative abundance is normally around 17% but can vary a good amount.
- M/z 502 relative abundance is normally around 2% but can vary a good amount. Anything less than 1% would be alarming.
- Repeller voltage is normally around 32V. Anything less than 22V or greater than 38V would be alarming.
- Source Body voltage is normally around 6V. Anything less than 4V or greater than 10V would be alarming (even 10V is borderline).
- Ion Focus voltage is normally around -74V. -90V is alarming.
- EM voltage is normally around 1050V for a new EM. New instruments will not leave the factory with an EM voltage above 1400V.

### Chemical Checkout

- EIEX OFN TIC height is normally around 3.2K but can vary a good amount. Anything less than 1.5K would be alarming.
- EIEX OFN 272->222 height is normally around 550 but can vary a good amount. Anything less than 150 would be alarming.
- EIEX OFN 272->222 RMS noise is normally around 2.
- EIEX OFN 272->241 height is normally around 525 but can vary a good amount. Anything less than 100 would be alarming.
- EIEX OFN 272->241 RMS noise is normally around 2.5.

## EIEX Extractor source with controlled iris

### Tune Report

- M/z 69, 264, and 502 base peak mass axis should be within +/- 0.1 AMU of target on both quads.
- M/z 69, 264, and 502 isotope mass axis should be within +/- 0.2 AMU or target on both quads.
- M/z 69, 264, and 502 peak width at 50% should be 0.7 +/- 0.1 AMU on both quads.
- M/z 69 isotope ratio should be around 1.1%.
- M/z 264 isotope ratio should be around 5.8%.
- M/z 502 isotope ratio should be around 10.0%.
- M/z 69 is normally around an abundance of 1.2M on MS1 and 2.7M on MS2. Anything less than 200K would be alarming.
- M/z 264 is normally around an abundance of 300K on MS1 and 625K on MS2. Anything less than 50K would be alarming.
- M/z 502 is normally around an abundance of 75K on MS1 and 60K on MS2. Anything less than 5K would be alarming.
- M/z 69 should always have a relative abundance of 100%.
- M/z 264 relative abundance is normally around 27% but can vary a good amount.
- M/z 502 relative abundance is normally around 7% but can vary a good amount. Factory spec is at least 2.4%.
- Repeller voltage is normally around 8.5V. Anything greater than 16V would be alarming.
- Ion Focus voltage is normally around -74V. -90V is alarming.
- EM voltage is normally around 1080V for a new EM. New instruments will not leave the factory with an EM voltage above 1400V.

### Chemical Checkout

- EIEX OFN TIC height is normally around 11.5K but can vary a good amount. Anything less than 2K would be alarming.
- EIEX OFN 272->222 height is normally around 1600 but can vary a good amount. Anything less than 600 would be alarming.
- EIEX OFN 272->222 RMS noise is normally around 2.1.
- EIEX OFN 272->241 height is normally around 1400 but can vary a good amount. Anything less than 500 would be alarming.
- EIEX OFN 272->241 RMS noise is normally around 2.4.

## PCI

### Tune Report

- M/z 41, 169, 267, and 599 base peak mass axis should be within +/- 0.1 AMU of target on both quads.
- M/z 41, 169, 267, and 599 isotope mass axis should be within +/- 0.2 AMU or target on both quads.
- M/z 41, 169, 267, and 599 peak width at 50% should be 0.7 +/- 0.1 AMU on both quads.
- M/z 41 isotope ratio should be around 3.3%.
- M/z 169 isotope ratio should be around 3.2%.
- M/z 267 isotope ratio should be around 5.4%.
- M/z 599 isotope ratio should be around 12.0%.
- M/z 41 is normally around an abundance of 2.2M on MS1 and 1.4M on MS2. Anything less than 100K would be alarming.
- M/z 169 is normally around an abundance of 200K on MS1 and 315K on MS2. Anything less than 10K would be alarming.
- M/z 267 is normally around an abundance of 2.0M on MS1 and 1.6M on MS2. Anything less than 100K would be alarming.
- M/z 599 is normally around an abundance of 375K on MS1 and 75K on MS2. Anything less than 2K would be alarming.
- M/z 41 should always have a relative abundance of 100%.
- M/z 169 relative abundance is normally around 8.5% but can vary a good amount.
- M/z 267 relative abundance is normally around 81% but can vary a good amount.
- M/z 599 relative abundance is normally around 16.5% but can vary a good amount.
- Emission current must be 240uA or less.
- EM voltage is normally around 1150V for a new EM.

### Chemical Checkout

- PCI BZP 183->105 height normally starts around 620K and ends around 985K
- PCI BZP 183->105 RMS noise is normally starts around 11.6 and ends around 10.0.

## NCI

### Tune Report

- M/z 185, 351, and 449 base peak mass axis should be within +/- 0.1 AMU of target on both quads.
- M/z 185, 351, and 449 isotope mass axis should be within +/- 0.2 AMU or target on both quads.
- M/z 185, 351, and 449 peak width at 50% should be 0.7 +/- 0.1 AMU on both quads.
- M/z 185 isotope ratio should be around 3.2%.
- M/z 351 isotope ratio should be around 6.6%.
- M/z 449 isotope ratio should be around 8.8%.
- M/z 185 is normally around an abundance of 145K on MS1 and 175K on MS2. Anything less than 20K would be alarming.
- M/z 351 is normally around an abundance of 120K on MS1 and 140K on MS2. Anything less than 10K would be alarming.
- M/z 449 is normally around an abundance of 8.5K on MS1 and 14K on MS2. Anything less than 2K would be alarming.
- M/z 185 should always have a relative abundance of 100%.
- M/z 351 relative abundance is normally around 70% but can vary a good amount.
- M/z 449 relative abundance is normally around 5.4% but can vary a good amount.
- EM voltage is normally around 1230V for a new EM.

### Chemical Checkout

- NCI OFN 272 height normally starts around 30K but can vary a good amount. Even instruments that start at <1000 signal height can increase over time to pass. NCI OFN height normally ends >200K.
- NCI OFN 272 RMS noise is normally starts around 20.5 and ends around 51.7.