

Updating the QC1 Calibration (Affects Density Only):

For a given HA correction, run the QC1 three times for each energy setting.

uCT 35, 1200 mg HA calibration:

```
$ @um:uct_batch_measurement 21 1 1 116 135.0 n
$ @um:uct_batch_measurement 21 1 1 116 135.0 n
$ @um:uct_batch_measurement 21 1 1 116 135.0 n
```

```
$ @um:uct_batch_measurement 21 1 2 116 135.0 n
$ @um:uct_batch_measurement 21 1 2 116 135.0 n
$ @um:uct_batch_measurement 21 1 2 116 135.0 n
```

```
$ @um:uct_batch_measurement 21 1 3 115 135.0 n
$ @um:uct_batch_measurement 21 1 3 115 135.0 n
$ @um:uct_batch_measurement 21 1 3 115 135.0 n
```

uCT 35, 200 mg HA calibration:

```
$ @um:uct_batch_measurement 21 1 23 116 135.0 n
$ @um:uct_batch_measurement 21 1 23 116 135.0 n
$ @um:uct_batch_measurement 21 1 23 116 135.0 n
```

```
$ @um:uct_batch_measurement 21 1 24 116 135.0 n
$ @um:uct_batch_measurement 21 1 24 116 135.0 n
$ @um:uct_batch_measurement 21 1 24 116 135.0 n
```

```
$ @um:uct_batch_measurement 21 1 25 115 135.0 n
$ @um:uct_batch_measurement 21 1 25 115 135.0 n
$ @um:uct_batch_measurement 21 1 25 115 135.0 n
```

VivaCT 40, 1200 mg HA calibration:

```
$ @um:uct_batch_measurement 21 1 60 106 102.0 n
$ @um:uct_batch_measurement 21 1 60 106 102.0 n
$ @um:uct_batch_measurement 21 1 60 106 102.0 n
```

```
$ @um:uct_batch_measurement 21 1 61 106 102.0 n
$ @um:uct_batch_measurement 21 1 61 106 102.0 n
$ @um:uct_batch_measurement 21 1 61 106 102.0 n
```

```
$ @um:uct_batch_measurement 21 1 62 106 102.0 n
$ @um:uct_batch_measurement 21 1 62 106 102.0 n
$ @um:uct_batch_measurement 21 1 62 106 102.0 n
```

VivaCT 40, 200 mg HA calibration:

```
$ @um:uct_batch_measurement 21 1 1 106 102.0 n
$ @um:uct_batch_measurement 21 1 1 106 102.0 n
$ @um:uct_batch_measurement 21 1 1 106 102.0 n
```

```
$ @um:uct_batch_measurement 21 1 2 106 102.0 n
$ @um:uct_batch_measurement 21 1 2 106 102.0 n
$ @um:uct_batch_measurement 21 1 2 106 102.0 n
```

```
$ @um:uct_batch_measurement 21 1 3 106 102.0 n
$ @um:uct_batch_measurement 21 1 3 106 102.0 n
$ @um:uct_batch_measurement 21 1 3 106 102.0 n
```

Then in the terminal, type

\$ uct_calib_phantom

and give the 3rd meas. number of the scans for each energy (45 kV, 55 kV, 70 kV), then 0 to stop.

so this program will look similar to this:

\$ uct_calib_phantom

UCT_CALIB_PHANTOM Version V1.0

Reading UCTD:UCT_CALIB_PHANTOM_KP_HA_4250.TXT

Phantom Type in file: 6

Phantom Number in file: 303

Voltage in file: 0

No of Materials in file: 1

With each, no of steps: 5

and mus: 1.000000

No. of Cylinders: 5

Measurement No. (0 to Stop) [0]: 3419

Mus: 0.6975 1.2870 1.8953 3.0436 5.2131

Calibration: Slope Intercept: 177.333 -130.899

Enter in Calibration Records if wished.

Measurement No. (0 to Stop) [0]: 3422

Mus: 0.5919 1.0285 1.4774 2.3216 3.8938

Calibration: Slope Intercept: 242.553 -152.248

Enter in Calibration Records if wished.

Measurement No. (0 to Stop) [0]: 3425

Mus: 0.5053 0.8303 1.1637 1.7784 2.9234

Calibration: Slope Intercept: 331.508 -177.905

Enter in Calibration Records if wished.

Measurement No. (0 to Stop) [0]: 0

(different number, of course, but similar)

Take the screen, and put it into a file, e.g. calib_41XX_sept2007.txt

Leave the editor (showing that file) open so that you can quick-paste the highlighted values with the middle mouse button in the next step.

Then in the terminal, type

```
$ run ut:uct_update_calibration
```

choose the 45 kV entry and hit return a few times, until it asks you:

```
Default unit type (1= $\mu$ , 2=mg, 3=HU, 4=Custom) [1]: 2 <--  
 $\mu$  Enable [1]:  
 $\mu$ -scaling [4096]:  
Density Enable [0]: 1 <--  
Density units []: mg HA/ccm <--  
Density Slope [199.428]: --> enter slope of the 45 kV scan  
in the example this would be 177.333  
  
Density Intercept [-150.507]: --> enter intercept of the 45 kV scan  
in the example this would be -130.899  
  
HU Enable [0]: 1 <--  
 $\mu$  of water [0.681]: --> enter the FIRST, lowest mu value  
in the example this would be 0.6975
```

Hit return a few times until...

```
CUSTOM Enable [0]:  
Save Record ? [Y]: y
```

Then continue with the 55 kV and 70 kV records.

When you enter the numbers, check that the correct energy goes to the correct entry. A good thing to do is to check that slope and intercept are similar to the current values in your database (they are very different for the 3 energies, to it's easy to check this).

Then take the screen output, and put it into a file, e.g. calib_41XX_entered.txt

Start the scanner, and scan the phantom again, once for every energy, and start the evaluation, and send the output to Scanco along with the two text files. The values for Mean5 should be around 780/790 now.