
Subject: Re: FRS Calibration Issue

Posted by [mlcortes](#) on Sun, 21 Sep 2014 19:59:49 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi Scott!

Good to know that you found the problem with the Z calibration!

I looked at your calibrations and all seems to be fine. The only parameter I don't find calibrated is ρ_0 . This is the path of the central trajectory along the FRS. This value is usually obtained with the minimum matter run and can explain the shift in AoQ that you have.

To check if this parameter is correct, you can take different settings from the logbook and multiply the magnetic field measured (that should be written in the side) times the ρ_0 that you are using in your `FrsId.par`. Take into account that there is one ρ_0 for each magnetic field. The multiplication $B\rho_0$ should be very close to the theoretical values, that are written usually at the bottom of the page after the settings.

If the values differ is because the ρ_0 values are not correct and in this case you can find the proper ones.

About getting a position from the scintillators, you can do it using the `TofSystemTacCal` processor in the FRS plugin. It has as inputs `dt_S2lr` and `dt_S4lr` which are the times between left and right PMTs of each scintillator.

```
processor Frs/TofSystem  FRS.TofSystemTacCal
```

```
  dt_S2lr <- FrsCrate.adc0[0]
```

```
  dt_S4lr <- FrsCrate.adc0[1]
```

```
.....
```

```
end
```

You can plot this values vs the position projected in the scintillator position measured by the TPCs like (i take only as example `Sc21`)

```
processor Frs/ScintChecks/S2_x_vs_x  UTILS.Pair
```

```
  first <- Frs/TofSystem.dt_S2lr
```

```
  second <- Frs/S2tracking.xs[1] ##check where are you projecting according to your  
S2tracking.par file
```

```
  display first:second in S2pos_checks  1000,2000,2500:500,-20,20 ## check the range or  
leave it smart to start
```

```
end
```

The plot you obtain should be a line, correlating the time difference to the position. You can fit this line in Go4 using the `SetProfileX` and the `FitPanel`, and put the coefficients in the file `TofSystem.cal`. The name of this parameters is `cal_x_time_S2` (for `Sc21`) and `cal_x_time_S4` (for `Sc41`). With this parameter properly set you should be able to see the output `x_time_S2` giving you the position. To compare again with position from TPCs:

```
processor Frs/ScintChecks/S2_calx_vs_x  UTILS.Pair
```

```
  first <- Frs/TofSystem.x_time_S2
```

```
  second <- Frs/S2tracking.xs[1]
```

```
  display first:second in S2pos_checks  500,-20,20:500,-50,50  
end
```

One can do the same calibration using, not the time difference between the 2 PMTs, but the difference in the amplitude measured.
Let me know how is it going and if you have more questions.
