

Discussion of Work List

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1) Verify that all flash measurements are properly timed in. Add or subtract delays of about 20 buckets to see if the intensity goes up and down as expected. We can do this using the 144 bucket delay.

- From Bob: sure, we've made a cursory check of this but not completely systematic, should be a quick manual check.
- High priority: are the flashes triggered by AA markers at least roughly timed in. I have not see this checked. Maybe it has been?
- Low priority: checking the BES trigger flashes is really a double check. Nice if we can do a systematic survey before shutdown but it should not stop higher priority stuff.

2. Verify that all combinations of the following give the same position:
- closed orbit vs turn by turn
 - 53 MHz vs 22 MHz
 - proton vs pbar
 - low/hi/medium gain
- I am not sure if we actually have states that allow us to measure all 24 combinations but we should do as many as possible. To do this we need to get data from a variety of states in a short period of time when the orbit is believed not to have drifted. We should mix in some closed orbit, 53 MHz, proton high gain throughout the study in order to verify that the orbit has remained stable.
 - Reply from Bob: Rob identifies a very large parameter space...
 - CO vs. TBT should certainly be checked
 - as well as 53 vs. 2.5 (provided suitable beam can be had, moderate intensity single batch beam will probably work)
 - proton vs. pbar is probably a very difficult comparison due to lack of a credible reference between the two beams
 - low/hi/med gain can be checked in the machine with suitable beam, but one must be careful to compare apples to apples.
 - **High Priority:**
 - CO vs TBT for one proton state and one pbar state.
 - Identify at least one point of comparison between p and pbar.
 - Identify one state in which we can do a meaningful 53 vs 2.5 MHz comparison.
 - **Low Priority:**
 - Do the above on more than 1 state.
 - Understand if there is a state that easily lets us check the gain dependence.

- 3) What can we do to test if position depends on intensity? We already have the test using slow spill. I am not sure what else we can easily do.
- From Bob: position vs. intensity could be a never-ending task, the position vs. time during slow spill is a good milestone
 - **Nothing more before shutdown.**
- 4) Scan the finest grained delays (the Echotek channel delays, denominated in ticks of the 10/7 clock.) and verify that the measured position does not change. This will change the behaviour of any high frequency stuff that aliases into the pass band of the digital filter. In the TeV we did this test without doing any extra work because of the 5 stable phases - we checked that the position was the same for all phases.
- From Bob: yes, to get handle on size of effect (although it might vary channel to channel depending on RF filter matching far out into the "stop band"), but not high priority as results would be unlikely to change present design.
 - **Medium Priority: do it before shutdown if it does not get in the way of other things.**
- 5) Measure resolutions for as many combinations of 2) as possible. Check that they make sense.
- From Bob: yes, under well known and documented conditions. Peter is awaiting opportunity to do this for some TBT measurements.
 - **High Priority: Whatever get done in 2), make sure to get resolutions too.**

- 6) Understand the offset issues that were raised at the Tuesday meeting on Feb 14/06.
 - From Bob: certainly and important before shutdown
 - High Priority. Dave suggested there are some sign errors? I am not sure who should work on this.
- 7) Verify that the I44 pre-trigger delay works as expected.
 - From Bob: yes
 - High Priority: this is a small job. Just do it.
- 8) Make turn-by-turn measurements at places where the closed orbit resolution is poor and see what frequencies contribute to the poor resolution. Are these understood?
 - From Bob: yes
 - High Priority: a quick survey is a small job. Do that much before shutdown.

9) Can we use the two existing houses to understand timing between houses, to ensure that the "seam" in the ring-wide turn by turn data is in the right spot?

- From Bob: yes, but probably will only provide partial answer for entire ultimate ring-wide system, not necessarily high priority before shutdown
- **Low priority. No plans to do anything before shutdown. This requires the mods to the timing card to get this right.**