

Notes from the 3/15/05 and 4/05/05 MI BPM Requirements Meeting  
Stephen Wolbers

These notes can be found in Beams docDB #1526.

Sorry about the tardiness of these notes!

#### 1. Margaret Votava - front-end software

- Margaret described some of the discussions that she, Kurt Biery and Luciano Piccoli had with Dave Capista and Alberto Marchionni about the requirements and capabilities for the front-end software (and the system as a whole) based on the machine cycles. This impacts on the buffers in the front-end, Echotek setup and use, state devices, TCLKs, etc.

#### 2. Peter Prieto - Echotek investigations

- Peter described some work that was starting (mid-March) to understand how to use the Echotek board somewhat differently in the MI BPM than in the Tevatron or Recycler system. Instead of using 2 channels of the Graychip per input channel (BPM plate or strip) one could contemplate using four Graychip channels per BPM plate. This would potentially allow 4 different measurements to go on simultaneously: 2 wideband (TBT) and 2 narrowband (closed orbit). It is possible that the 2 wideband measurements could be at 53MHz and 2.5MHz and the 2 narrowband measurements could also be at 53MHz and 2.5MHz. This would allow the Echotek to make all of the measurements in parallel and avoid the large overheads associated with switching modes from 2.5MHz to 53MHz or narrowband to wideband.

#### 3. Peter Prieto - MI measurements

- Peter's measurements, shown at this meeting and the meeting on April 5, have been written up in docDB #1780.

- Peter showed many measurements from BPM 303, one pickup, split signal (giving 3dB loss) connected to Heliac cable 200 ft long.

- There was some discussion of the cables currently used for MI BPM going from the tunnel to the service buildings. The cable is RG8 (not foam 8) and it ranges from 200 to 1200 feet in length, depending on BPM.

- Peter showed measurements from various cycles: protons for stacking, protons for shots, pbars from the accumulator, pbars for shots, etc.

- These measurements were repeated with a prototype transfer line analog front-end with filters and attenuators/amplifiers and those measurements were shown in the April 5 meeting.

#### 4. Manfred Wendt - MI BPM simulations

- Manfred showed some work he has done simulating the response of the MI BPM pickups to beam using the MAFIA program. The results shown look reasonable and look reasonably similar to real data. This is a promising avenue of approach in understanding the system.

#### 5. Bob Webber - MI BPM schedule

- Bob showed some ideas of what work can and should go forward in order to progress on the MI BPM project. I will simply repeat what Bob has written:

Now -> June '05:

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- Work with Transfer Line project to establish suitable "transition" board.
- Verify signal levels and suitable gains.

Now -> Sept '05:

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- develop, test, and implement "Echotek plan".
- work with MI guys to fix and perhaps iterate and document requirements and functionality
- develop installation/integration plan with MI guys
- develop physical installation details

Now -> June '05

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- complete design of "summing box" with LP filters
- understand average power levels

June -> October '05

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- prepare for "summing" box replacement/modification

October -> November

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- install tested "summing" boxes in tunnel

June -> October

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- procure crates, etc.

Now

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- setup task codes, wbs, etc.