

Minutes of Thursday 2/6/03 RR BPM Meeting to discuss CALIBRATION SYSTEM

Attending: M. Bowden, B. Choudhary, J. Crisp, D. Nicklaus, P. Prieto, D. Voy, B. Webber, S. Zimmermann

Purpose of the meeting was to:

- Hear status of Sergio's efforts since last calibration meeting
- Refine the direction and tasks of calibration system design efforts
- identifying responsibilities for contributions to this topic for Feb.17 RR BPM Technical Design Review

Sergio first echoed the requirements as he understood them based on guidelines he received at last meeting. There was consensus that his interpretation was basically correct. He presented a conceptual calibration signal implementation that minimized additional electronics in the tunnel to support required functionality. Downsides of this scheme included the need for cabling to each preamp that currently does not exist and separate calibration signal drivers for each preamp. Mark offered a different solution not requiring additional cables that also minimized tunnel circuitry. That suggestion seemed attractive at first, but then appeared to suffer potentially serious problems due to wire-to-wire cross-talk. The method also was perhaps another half-step away from meeting the spirit of the requirements.

We fell back to a system comprised of a daisy-chained calibrate signal, automatically leveled at each preamp to make up for cable attenuation, and split into A/B channels and differential attenuators after each AGC stage. Sergio presented his initial design studies of a suitably simple circuit to perform the AGC action and made initial estimates of signal stability that are near acceptable levels.

Some discussion followed regarding the calibration signal generator hardware. At this stage the plan is that the calibration signal will be periodic at the RR revolution period and will simulate the beam in four 2.5MHz bunches and unbunched beam either separately or together.

Sergio was assigned to continue pursuit in detail of the calibration signal level control and attenuation circuitry for the preamp. Peter was assigned to pursue investigation of suitable signal generators for the calibration signals.

Conceptual design write-up of calibration circuitry was requested to inclusion in conceptual technical design document.

[post-meeting thoughts ... it is becoming apparent that a calibration system that requires use of the presently un-used and un-terminated twisted pair in the tunnel cables will have significant impact on time required for installation (including precious tunnel time!)]

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