PS/HP/Note 98-02 (Min.)
AD Note 22
9/2/98

Minutes of APAL meeting no.11
NMR/B-train controls

T. Eriksson

Present: J. Bosser, F. Caspers, D. Cornuet, T. Eriksson, M. Giovannozzi, G.-H. Hemelsoet, J.-Y. Hemery, S. Maury, D. Möhl, U. Mikkelsen, H. Mulder, E. Roux, T. Salvermoser, C. Serre

- **B-TRAIN DETECTION**: D. Cornuet

NMR: to measure the main field at different field levels, 3 multiplexed probes will be used in BHN45.

"Marker/peaking" strip mode will be used during the ramps (up or down), this will generate a trig instant at desired field value. During a flat top, the "measure" mode will return the measured field value on demand.

B-train: 2 measuring coils, also in BHN45 will be used, 1 for high and 1 for low fields.

Both B-train and measured field values are required.

NMR-measurements at 100 MeV/c will be done with extended flat top length during md:s only.

For operation at inverse polarity, a remote control facility for the Teslameter should be foreseen.

A machine mode bit for the security access system should also be foreseen. To be discussed with TSO, Action : SM

No NMR-probe will cover an eventual 200 MeV/c flat top. This was considered unnecessary since the ejection line is designed for max. 105 MeV/c. However, a 200 MeV/c flattop can be useful for electron cooling studies.

- **CONTROLS – DISCUSSION**

A prototype controls solution for B-train and NMR using a PC was proposed by CO and adopted.

Final specifications for the system will be published shortly. Action : T.S/F.C.

Written specification for the Eq. Module will be carried out by CO. Action : C.S.

CO will supply the manpower necessary for development of the RT-task.

- **DISTRIBUTION OF RESPONSIBILITIES**

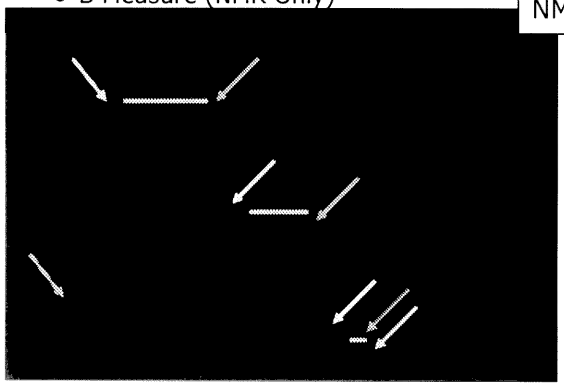
Sensor coils/NMR probes :	D. Cornuet
B-train system + controls issues vs. CO :	T. Salvermoser
NMR/Metrolab :	F. Caspers
GPIB/cabling :	F. Caspers/T. Salvermoser
Application program :	T. Eriksson/H. Mulder
Eq. Module/RT :	C. Serre

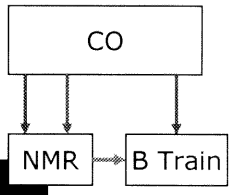
- **SCHEDULE**

Implementation/tests	June-August –98
Commissioning	September-November -98

NMR and B Train Control

- How does it work ?
  - 2 ways of using it
    - NMR in relation with B Train
    - B Measure (NMR Only)

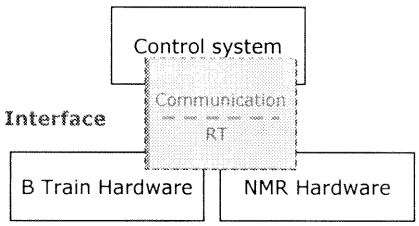




Control
Measure
NMR pulse

Repartition of the work

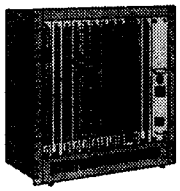
- The Co provides
  - The Control system access.
  - The timings.
  - The general infrastructure.
  - An help for programming.



- The specialists provide
  - The hardware and software layout.
  - A precise description of what is expected by the operation and the specialist.
  - The responsibility of the maintenance of the specific Real time task.

2 Solutions

- DSC
  - ✓ Standard solution.
  - ✓ New EM and RT.



- PC standalone
  - ✓ More easy to program and understand.
  - ✓ Automatic refreshed data.
  - ✓ Specialist diagnostic tool.
  - ✓ Cheaper.
  - ✓ Only RT.

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Other questions

- Link with the operation of the machine (Essential, critical, diagnosis tool) ?
- Technical background and group (RF,PO) of the responsible ?
- Need of the Data by other applications ?
- Measure on request or continuous ?
- Differences between measure and B Train acquisitions ?
- Time schedule (Commissioning, Operation,...) ?
- Need for Specialized Applications ?

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