ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE
EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Laboratoire Européen pour la Physique des Particules
European Laboratory for Particle Physics

CTF3-Cttee-Min-1/Rev.

Minutes of the 1st CTF3 Committee

Friday 18th April 2008

Participants:

H. Braun, R. Corsini, J.-P. Delahaye, T. Ekelöf (Uppsala University), K. Elsener, T. Garvey (PSI), A. Ghigo (LNF- Frascati), G. McMonagle, J. Monteiro, F. Peauger (CEA-Saclay), L. Rinolfi, R. Roux (LAL-Orsay), R. Ruber (Uppsala University), S. Stapnes (University of Oslo), I. Syratchev, F. Tecker, F. Toral (Ciemat-Spain), M. Velasco (N.-W. University, Illinois), W. Wuensch, V. Ziemann (Uppsala University).

Welcome:

J.P. Delahaye, speaking on behalf of G. Geschonke absent for cause of illness, welcomes the participants including the ones attending by Webex. He asked H. Braun, CTF3 deputy project leader, to chair the meeting.

Hans introduced Dr S. Stapnes representing Oslo University who recently joined the CLIC/CTF3 collaboration and will contribute to the TBL line study with a PhD student.

1. Introduction (J.P. Delahaye):

Using G. Geschonke's transparencies, Jean-Pierre gave an Introduction, explaining the mandate and the goal of this meeting, foreseen to be held once a month.

Some questions concerning the CLIC organigramme and the role of the various committees were asked by T. Ekelöf.

Added after the meeting:

a) membership

In order to avoid confusion about the initial membership, here is the list of initial members including the names of the presently designated team leaders:

Team leaders

Helsinki Institute of Physics: K.Österberg
CEA IRFU: F.Orsini
LAL: not nominated
LAPP: S.Vilalte
RRCAT: V.Sahni
INFN Frascati: A. Ghigo
University Oslo: S.Stapnes
NCP Pakistan: H.Hoorani

Budker Institute BINP: Not nominated
IAP: Not nominated
JINR Dubna: Not nominated
Spain: F.Toral
Uppsala University: T.Ekelöf
PSI: L.Rivkin
Turkey: A.K.Ciftçi
J.Adams Institute: K.Peach
Univ. London, Royal Holloway: G.Blair
Cockcroft Institute: S.Chattopadhyay (observer)
NW. University: Not nominated
SLAC: Not nominated
JLAB: Not nominated

H.Braun, Deputy project leader
R.Corsini, Operation
J.P.Delahaye, CLIC study leader
S.Doebert, TBL
K.Elsener, Califes photo injector
G.Geschonke, Spokesperson, chairman
G.McMonagle, GLIMOS
L.Rinolfi, Installation
K.Schirm, Stand-alone 12 GHz power source
I.Syratchev, Two Beam Test Stand scientific coordinator

Collaborators are free to nominate another representative.

b) Spanish contribution

We were informed, that Spain has agreed to finance all series beam position monitors for TBL including the front-end electronics! A prototype is presently being built; the work is done by IFIC Valencia and UPC Barcelona.

2. Status of CTF3 installation (L. Rinolfi):

Louis presented the status of the CTF3 installation. After a brief history from 2003 until now, he showed that the present installation is completed from the Injector Linac up to the Combiner Ring. Presently the Transfer Line TL2 is partly installed and will be completed in June 2008.

The same is true for the CLEX installation which includes the TL2' line, TBTS, CALIFES and TBL.

Louis thanked LAL for their support in repairing the CTF3 thermionic gun electronics during the last shut-down. Problems with this gun had made operation during 2007 very cumbersome. However, yesterday, some instabilities of the gun beam current appeared again, which have meanwhile disappeared again. Concerning the klystrons, some worries were mentioned since the CTF3 starts this year with two klystrons not working (due to modulator charging power supplies which have been damaged beyond repair). New power supplies are being ordered.

Concerning the RF gun PHIN, Louis mentioned the agreement found with LAL and the status concerning the deliverable for the FP6-JRA2-PHIN. LAL will provide the second

gun to CERN, which had been manufactured for tests at LAL, and manufacture a new gun.

In conclusion, all installation (without the Tail Clipper into TL2) is foreseen to be completed for June 2008 as Phase 0 for TBTS and for TBL.

For the Tail Clipper into TL2, H. Braun mentioned that the design drawings are finished. The order is not yet placed. The strip-line kicker is expected to be in finished by CIEMAT in July 2008 and to be installed at CERN in September 2008 (see Annex 1).

3. RF deflector for Combiner Ring (A. Ghigo):

Andrea presented the status of the two new RF deflectors designed by LNF and made in aluminium for cost saving. Damping of the vertical mode will be done via coupling loops in each cell, as suggested by I. Syratchev.

He explained the difficulty and delay to implement the Ti coating inside the cells.

Then he suggested planning RF tests with power at CERN before installing these RF deflectors into the Combiner Ring. Due to the overload with klystrons at CERN, it was suggested to consider the possibility to test these RF deflectors either at Trieste or at PSI. T. Garvey said that klystrons are available presently at PSI and he will enquire the possibility to do these tests.

One point came out concerning the planning. The present CTF3-DL-CR-TL2 schedule (see Annex 1) foresees a shut-down from 16th June until 4th July 2008 for the Combiner Ring and TL2 installation. However Andrea mentioned that these RF deflectors will be ready only at the end of June. If that is the case, the RF tests of these structures foreseen before installing them, are not compatible with the present CTF3 schedule.

W. Wuensch asked if other RF deflectors in copper are foreseen in the future. The answer is no. The situation will be reviewed following results of the tests with the Al deflectors.

In order to fight against the vertical instabilities, C. Biscari (LNF) is trying to find out another working point of the Combiner Ring with a new optics.

R. Corsini requested the last data concerning the tune.

4. CALIFES (F. Peauger):

On behalf of F. Orsini, Franck presented the status of CALIFES line for the Probe Beam.

The main issue concerns the misalignment of the line which is now understood. There were inconsistencies in the data exchanged between CERN surveyors and CEA surveyors which are now clarified. Nevertheless, at the Injector level, data should be reviewed. Then the vacuum should be opened in order to re-install the target supports and redo alignment according to the corrected data.

Tests at 3 GHz have been performed this week with PPT company on the new klystron (MKS 30) and the results are very good. For the time being, only one klystron is foreseen for the whole CALIFES line. Delays for the phase shifter will oblige to start CALIFES without this device in July 2008.

K. Elsener mentioned that a vacuum leak has been detected in the laser transport tube because the reading of the vacuum is showing some degradation.

5. CALIFES Injector (K. Elsener):

Konrad presented the status of the injector.

The preparation chamber for the photo-cathodes is ready.

The laser power, before the UV conversion, although smaller than designed, is sufficient. However after the conversion the situation is very poor. The specified energy on the photo-cathode was 370 nJ/pulse and presently the laser experts have estimated roughly 10 nJ/pulse. He mentioned a hypothesis that a DC component could exist coming either from the oscillator or from the amplifiers.

M. Petarca (CERN) is going to discuss with RAL colleagues who have designed the laser system next week.

6. TBTS (R. Ruber):

Roger presented in detailed the 2 phases foreseen for TBTS in 2008.

According to the present CTF3-CLEX schedule (see Annex 1), he showed that all installation will be finished in time for each phase.

Phase 0: end of June 2008. Only vacuum chambers and beam instrumentation will be installed into TBTS.

Phase 1: end of September 2008. One PETS structure will be installed. It will have the same characteristics as CLIC-PETS except the length (1 meter instead of 21 cm).

The Phase 2 (One PETS structure + one CLIC) is planned for next year.

For the PETS structure in TBTS, a second design will be done later on.

I. Syratchev mentioned that RF tests are planned at SLAC in June 2008 of a full PETS structure.

7. TBL:

Louis presented the TBL layout foreseen to be installed this year.

Igor mentioned that a first "test-bar" has been tested at Ciemat and a full PETS structure is planned to be installed next year.

8. Commissioning Delay Loop and Combiner Ring (R. Corsini):

Roberto mentioned the strategy for the commissioning of the Delay Loop and Combiner Ring:

a) The first 4 days of the week will be dedicated to this commissioning.

b) Friday and the full week-end will be dedicated to the 30 GHz tests in CTF2 using the PETS line of the Drive Beam Linac.

The year 2008 is divided into 3 runs (see Annex 2). He showed the goals and milestones planned for these runs. A tentative schedule for the first run was discussed.

Louis reminded the committee of the necessity to reshuffle the CTF3 Control Room in order to accommodate computers and screens for TBTS and CALIFES commissioning teams.

9. Commissioning of CALIFES (F. Peauger):

Franck presented the preliminary strategy discussed at CEA. The first 2008 run will be done without the phase shifter and at low charge. Shift work is under discussion. However the support from CERN operation will be necessary, at least at the beginning. R. Roux mentioned that LAL is willing to participate in the commissioning of the CALIFES RF gun. However the LAL priority is put on the NEPAL station. The latter should be finished before end of June otherwise no work will be possible before the year 2011.

Three names from LAL were mentioned: S. Cavalier, P. Lepercq, R. Roux.

Franck informed the committee that W. Farabolini (CEA) has asked for a long mission (2 years) at CERN.

G. McMonagle informed the committee that he will put into EDMS the detailed procedure to be followed by external visitors coming to work on CTF3.

10. Commissioning of TBTS (R. Ruber - I. Syratchev):

Roger mentioned that a lot of tests can be performed on TBTS even if the Probe Beam intensity is not the nominal one.

For Phase 0, ions tests can be done without Califes beam.

For Phase 1, recirculation into PETS is foreseen (mid-September 2008).

Therefore 100 MW with 250 ns would be a reasonable goal assuming that a beam of 20 A will be delivered into TBTS.

For Phase 2, even 1 order of magnitude less than nominal current for the Probe Beam, should allow performing different tests. If Phase 1 achieves the requested power, then an accelerating gradient of 120 MV/m into the ACS could be achieved.

11. A.O.B.:

a) R. Roux reminded the committee that Michel Bernard (LAL) will retire end of 2008 and it will be difficult to expect support from LAL about the thermionic gun after this date.

b) T. Ekelöf asked about membership definition from the present list presented by J.P. Delahaye. The latter agrees that R. Ruber should be added as member of the CTF3 committee as TBTS technical coordinator to be nominated by T.Ekelöf as team leader of the Uppsala University. Jean-Pierre invited the team leaders of the various collaborations to make similar proposals when necessary.

c) F. Peauger (on behalf of F. Orsini) asked if the time of the CTF3 Committee meeting foreseen on Friday afternoon could be changed, since it is not very practical for travel of the Collaboration representatives. Jean-Pierre answered that the proposal came from

the Chairman of the CTF3 Collaboration Board (M. Calvetti-LNF) but this could be reviewed. Thursday afternoon was considered as a more suited time by all participants. G.Geschonke will send mail to propose alternative dates for the next meeting in one month.

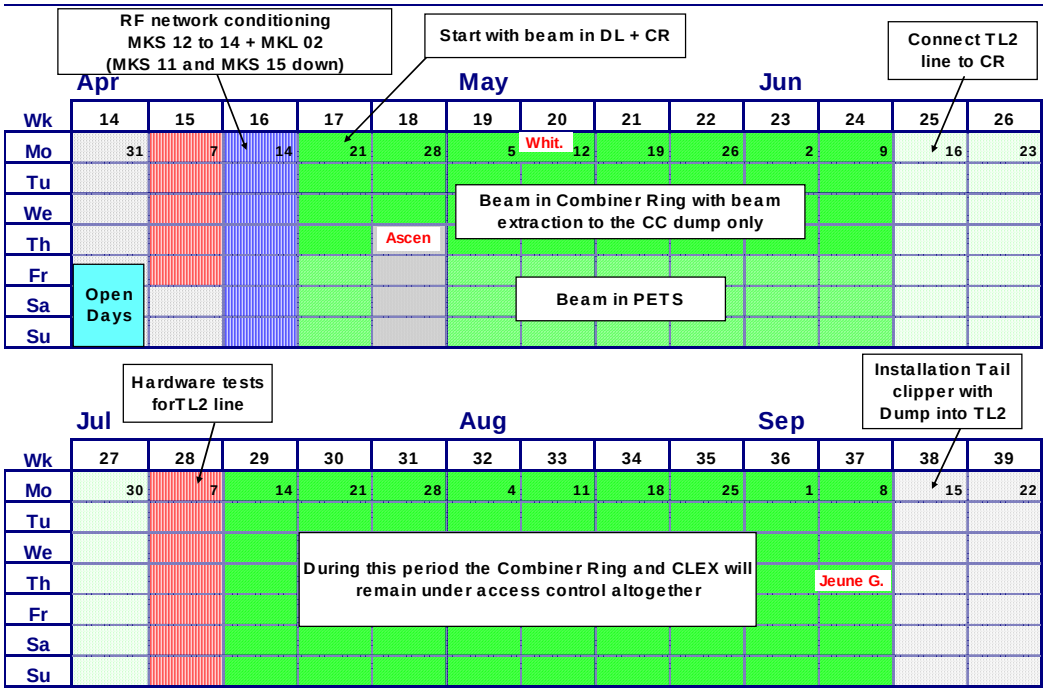
12. Next meeting

The next meeting will take place at CERN on **Thursday 15 May**.

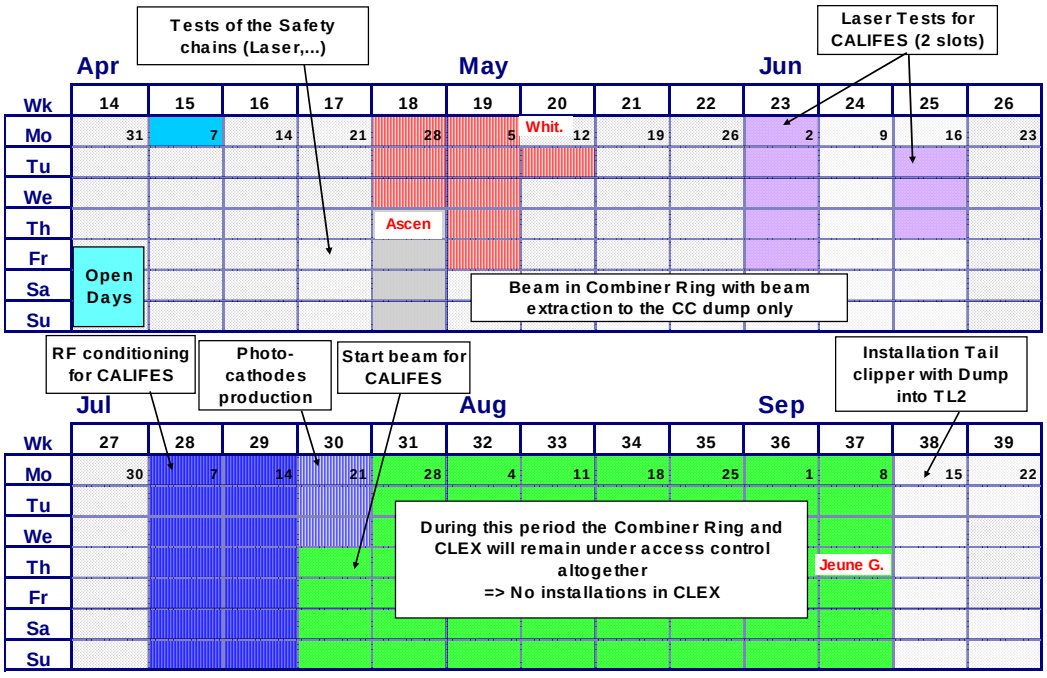
L. Rinolfi

Annex 1: CTF3 Schedule

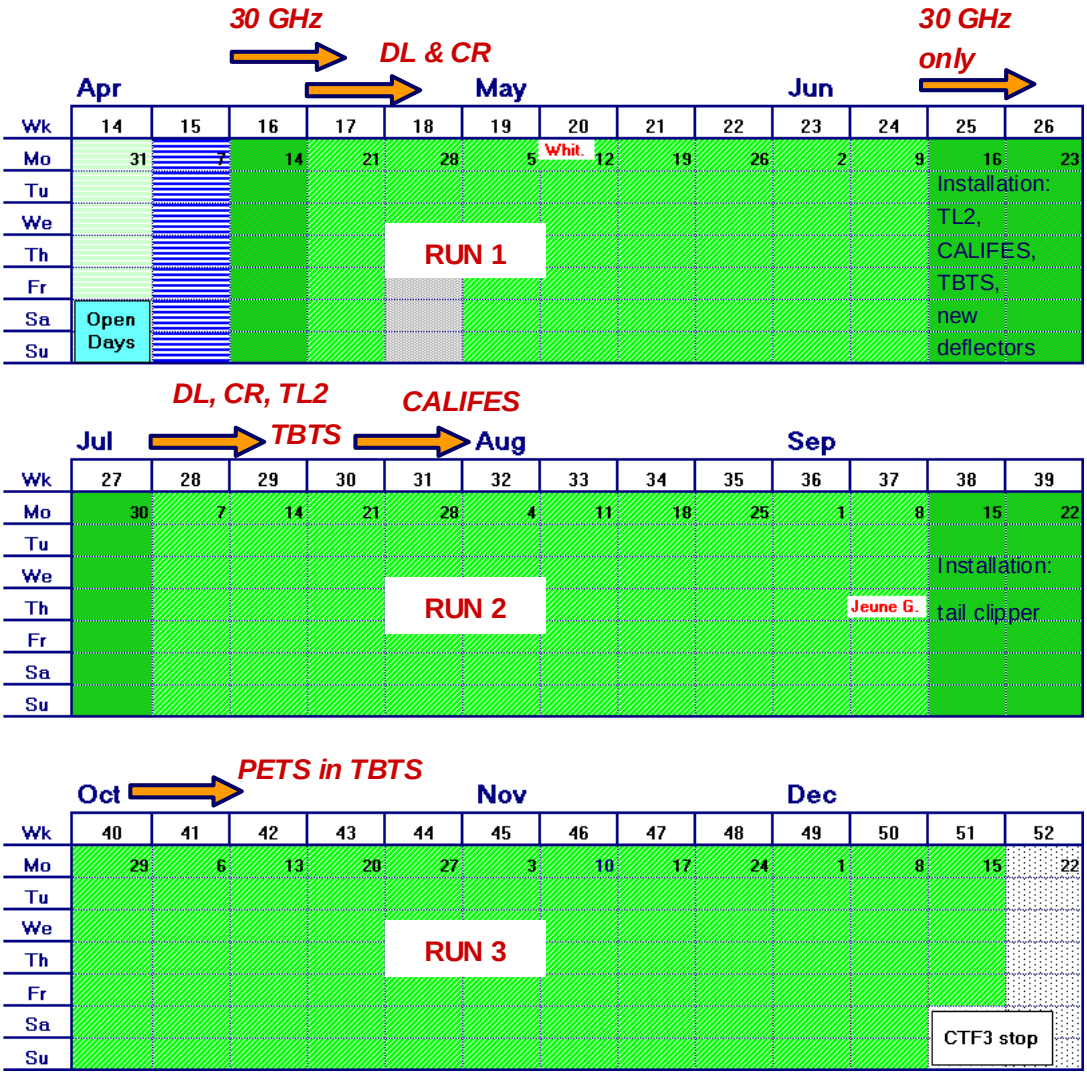
a) For Combiner Ring and TL2 line area



b) For CLEX area



Annex 2: CTF3 Operation Schedule



Linac only

Linac, Ring area, (CLEX)