

# **DISCUSSIONS AND STRATEGY FOR THE FUTURE**

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# CTF3 workshop

Answers to questions :

1) Number of cathodes  $2 \text{ cm}^2$   
for thermionic gun = 8

2) RF names

PB [3 GHz] J. LeDuff

B [TWB  
3GHz] L. Thorndahl

SHB [1.5 GHz] L. Thorndahl  
[4.5 GHz]

3) Bucking coil <sup>+ 2 gun lens</sup> for CTF3 gun  
from SLAC

LAL will use SLAC drawings  
and will built the  
solenoids

# CTF3 gun specifications

Voltage :

running  
conditioning

140 kV  
160 kV

Current :

(space charge limited)

9 A

Repetition rate :

100 Hz

Rise time  $\tau$  :

$\leq 10$  ns

Pulse length  
variations

Stability  
 $\frac{\Delta V}{V}$

20 - 300 ns

$\leq 1\%$

200 - 1600 ns

$\leq 0.1\%$

# Planning indicative for the CERN/LAL/SLAC collaboration on the CTF3 Injector

(\*) *Legend:* [P] = Preliminary stage [I] = Initial stage [N] = Nominal stage

## Year 2000

- August 2000: Linac 2000 conference (21-25 August)
- September 2000: PARMELA simulations for [I] at LAL and CERN
- October 2000: Based on latest accelerating structure characteristics (SHB+PB+B), update PARMELA simulations [N].  
Produce SUPERFISH files defining basic geometry of components.  
Start detail RF design and fabrication drawings for Buncher at CERN.  
Beam loading analysis.
- October 2000: Collaboration meeting CERN/LAL/SLAC (26-27 October).
- November 2000: Start mechanical engineering layout [N].  
Start beam diagnostic layouts at SLAC and CERN [N].  
Start to resolve mechanical conflicts [N].  
PARMELA simulations from Nominal to Initial stage at SLAC.  
Start CTF3 gun (150 kV) hardware modifications at SLAC.  
Start Gun electrical system (HV deck and electronics) design at LAL.
- December 2000: Send S - Band PB specifications [I]. → *mid - March 2001*  
Start Beam matching, beam diagnostics and collimation [I][N].  
Complete beam dynamics basic design studies of the injector [I] [N].  
Complete beam loading analysis [N].

## Year 2001

- January 2001: Start design of prebunchers and supports [I] [N].  
Start design of solenoids and supports (if necessary) [I] [N].  
Start design of diagnostics and supports [I] [N].  
Iterate with PARMELA as mechanical conflicts are solved.
- April 2001: End of LAL tests of CLIO gun [P].  
Start modifications of LIL front-end for CTF3 [P].
- June 2001: Install CLIO gun in LIL [P]. Start commissioning of injector [P].  
In case of new solenoids, start solenoid measurements [I].  
  
Run CTF3 injector at low current [P].  
  
Construction of 2 PBs (at LAL) and the Buncher (at CERN).

*end January ; Buncher defined*

## CTF3 Preliminary Planning

ID	Task Name	Qtr 4, 2000			Qtr 1, 2001			Qtr 2, 2001			Qtr 3, 2001			Qtr 4, 2001			Qtr 1, 2002			Qtr 2, 2002			Qtr 3, 2002	
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1	Buncher design [N] [I] [H] (CERN)				15																			
2	Pre-bunchers (3 GHz) specifications [I] [H]				15																			
3	Final injector design [N] [I]																							
4	Beam diagnostics [I] including mechanical design										21													
5	Solenoids [I][N]																							
6	SLAC gun at CERN [N] [I]																							
7	Two structures (TDS + SICA) [I]																							
8	Start installation [I]																							
9																								
10	[H] = High current mode																							

\* PB at CERN

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