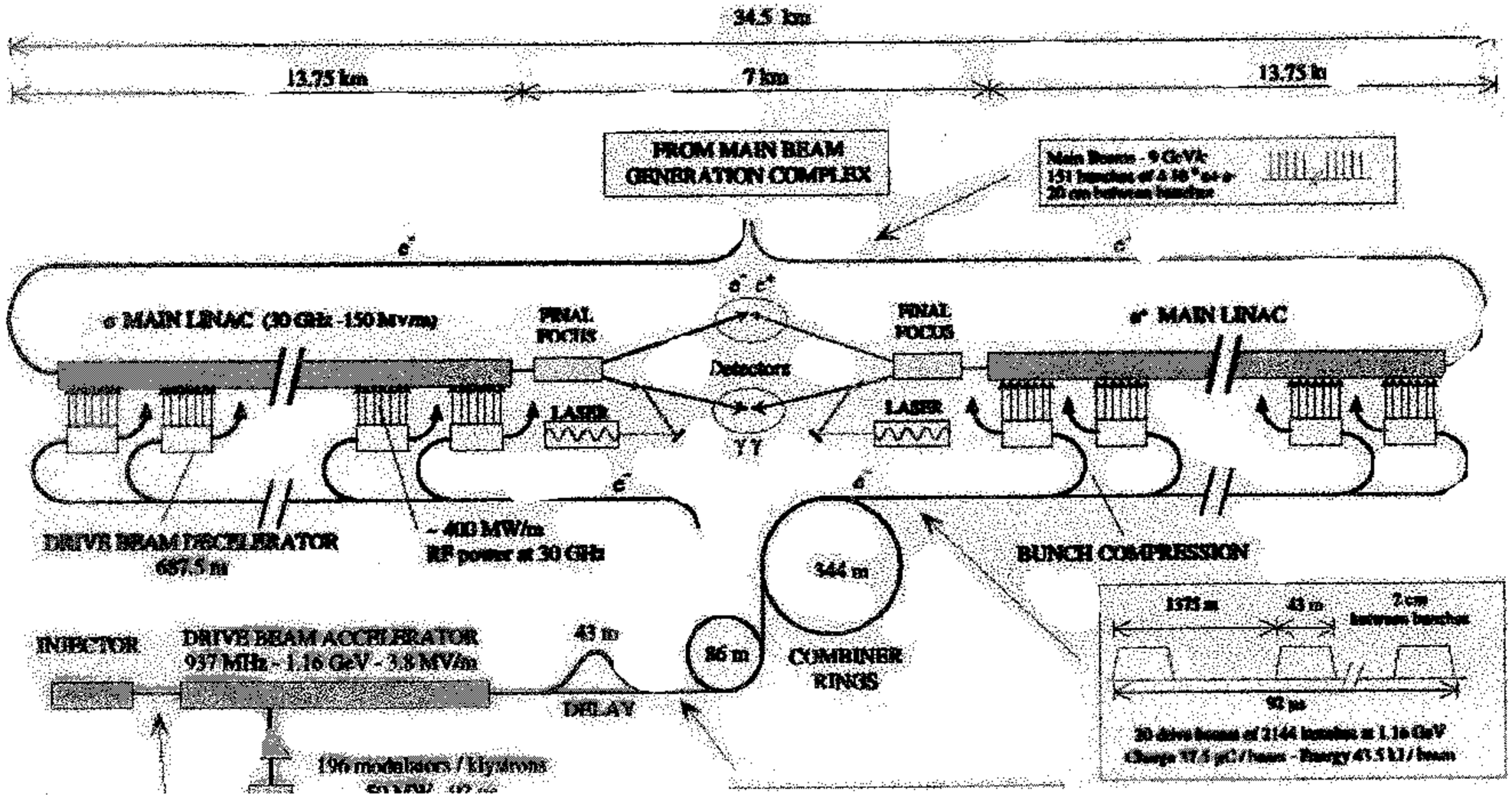
OPENING REMARKS – CTF3 STATUS

G. Geschonke

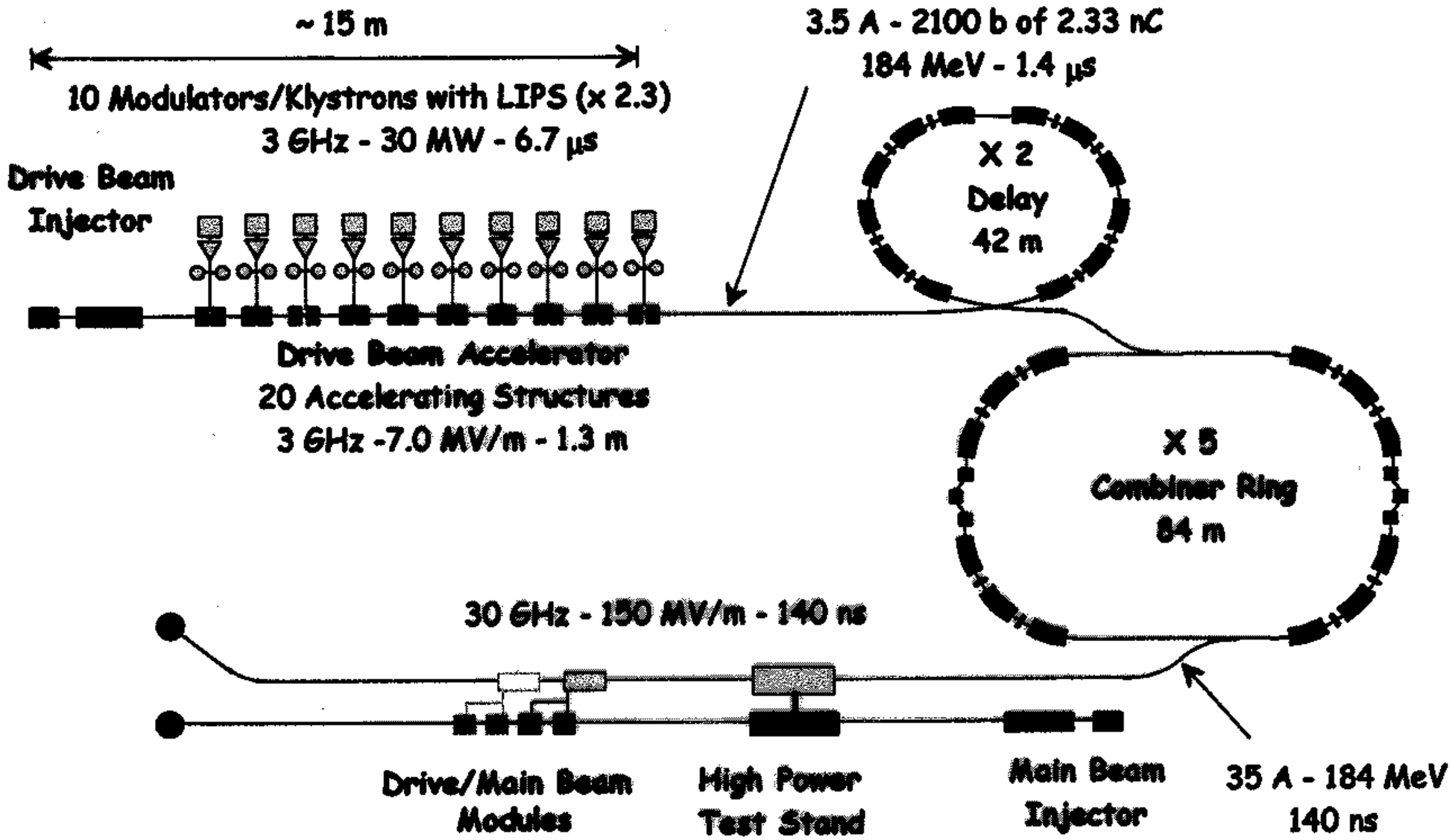
CERN European Organization for Nuclear Research

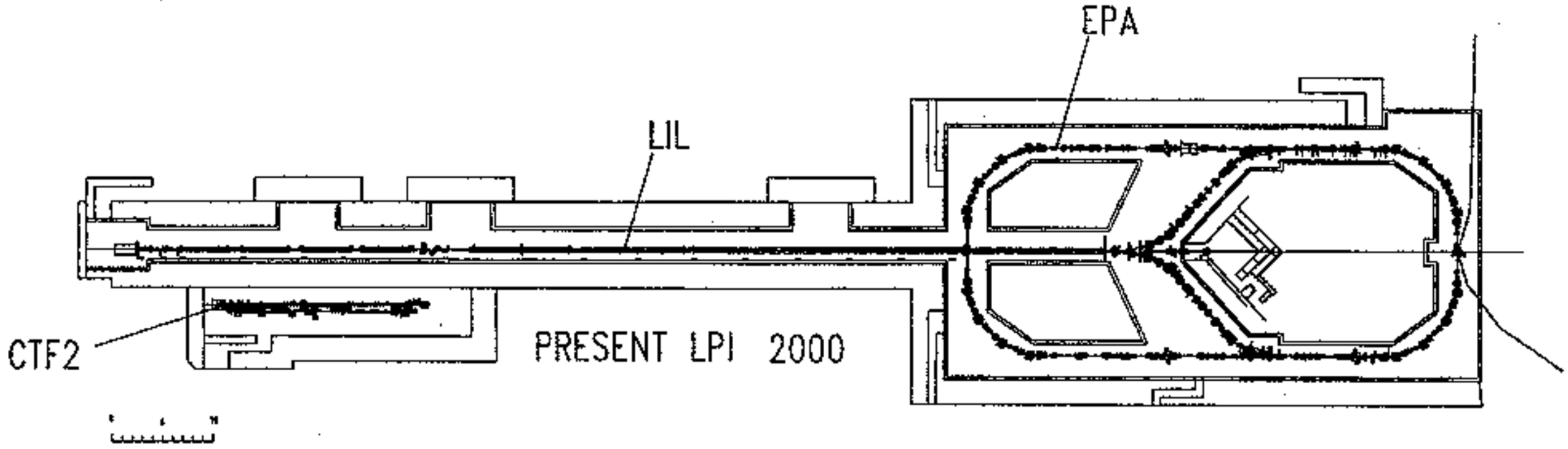
Overall Layouts

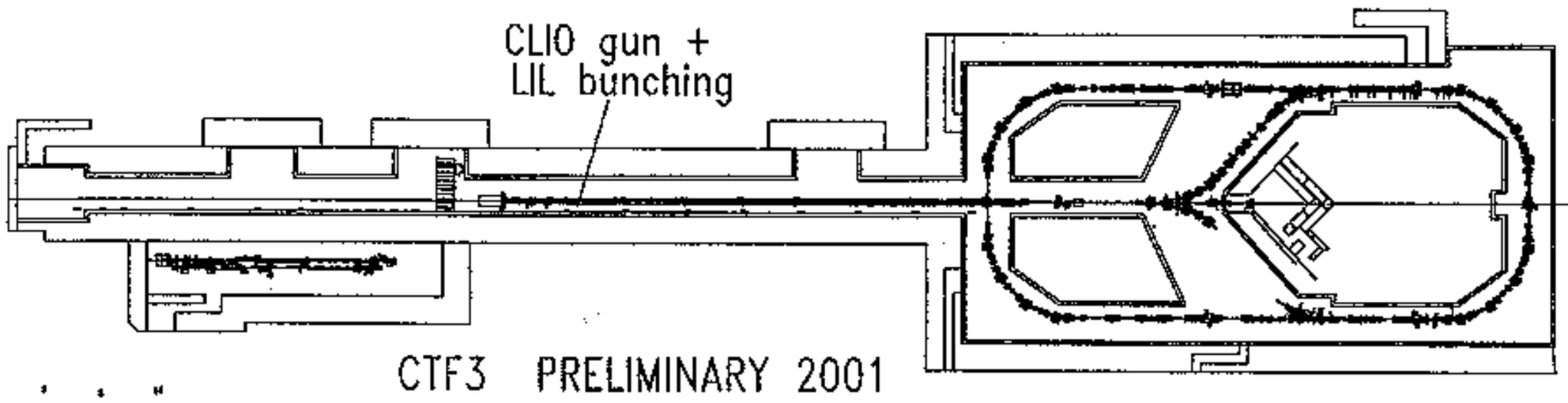
Overall Layout of the CLIC Complex at 3 TeV c.m.

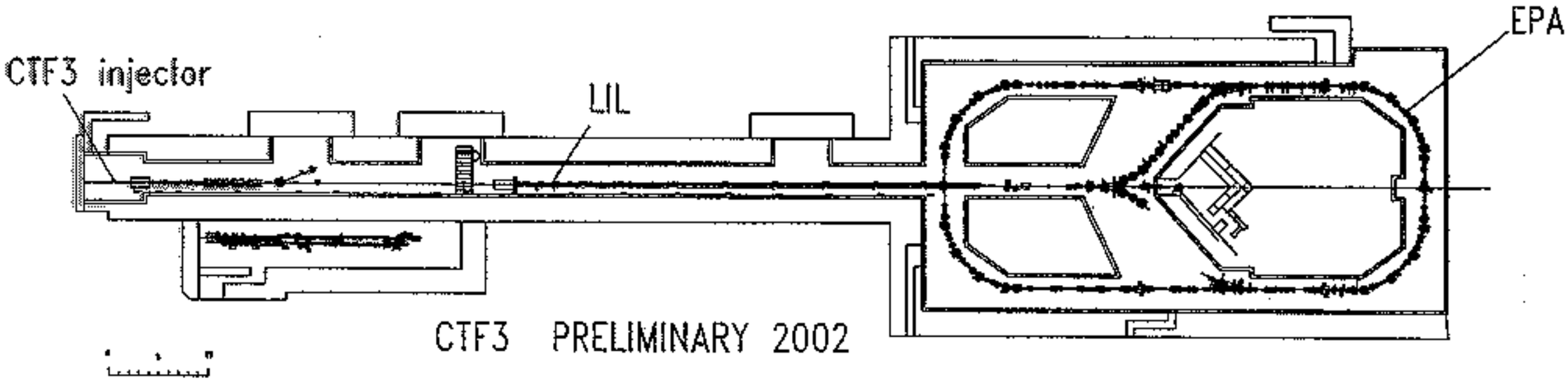


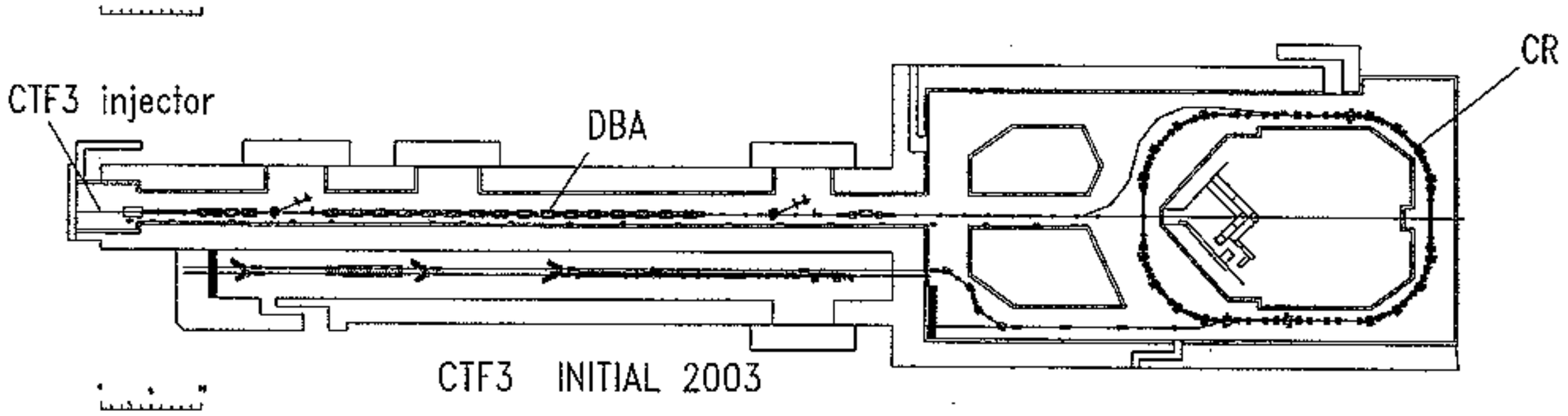
CTF3 - Test of Drive Beam Generation, Acceleration & RF Multiplication by a factor 10

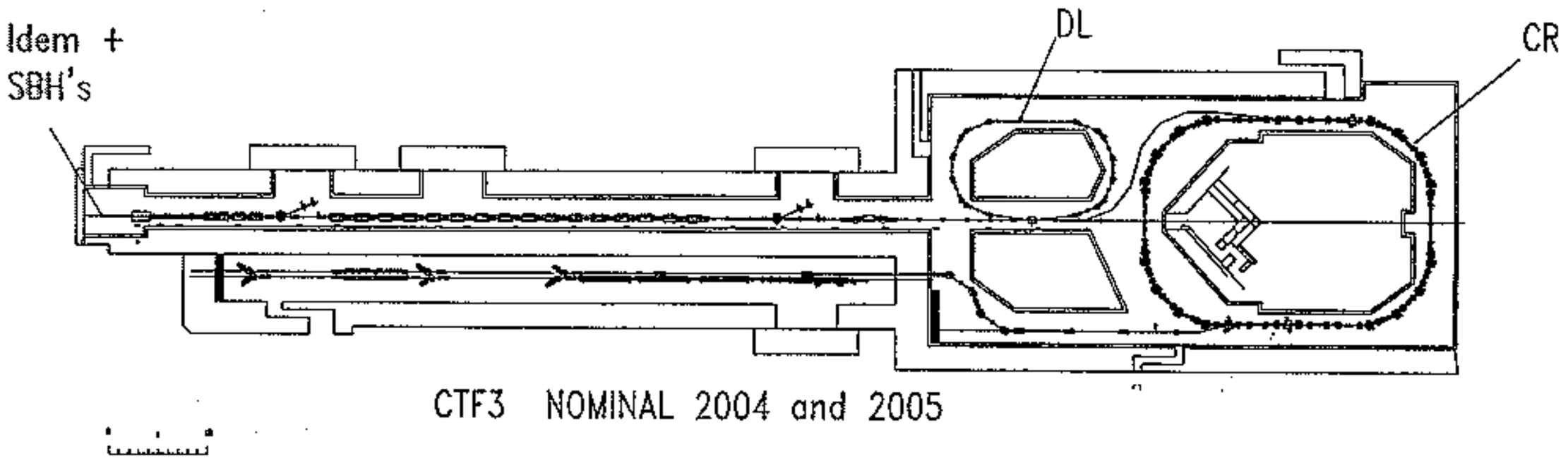










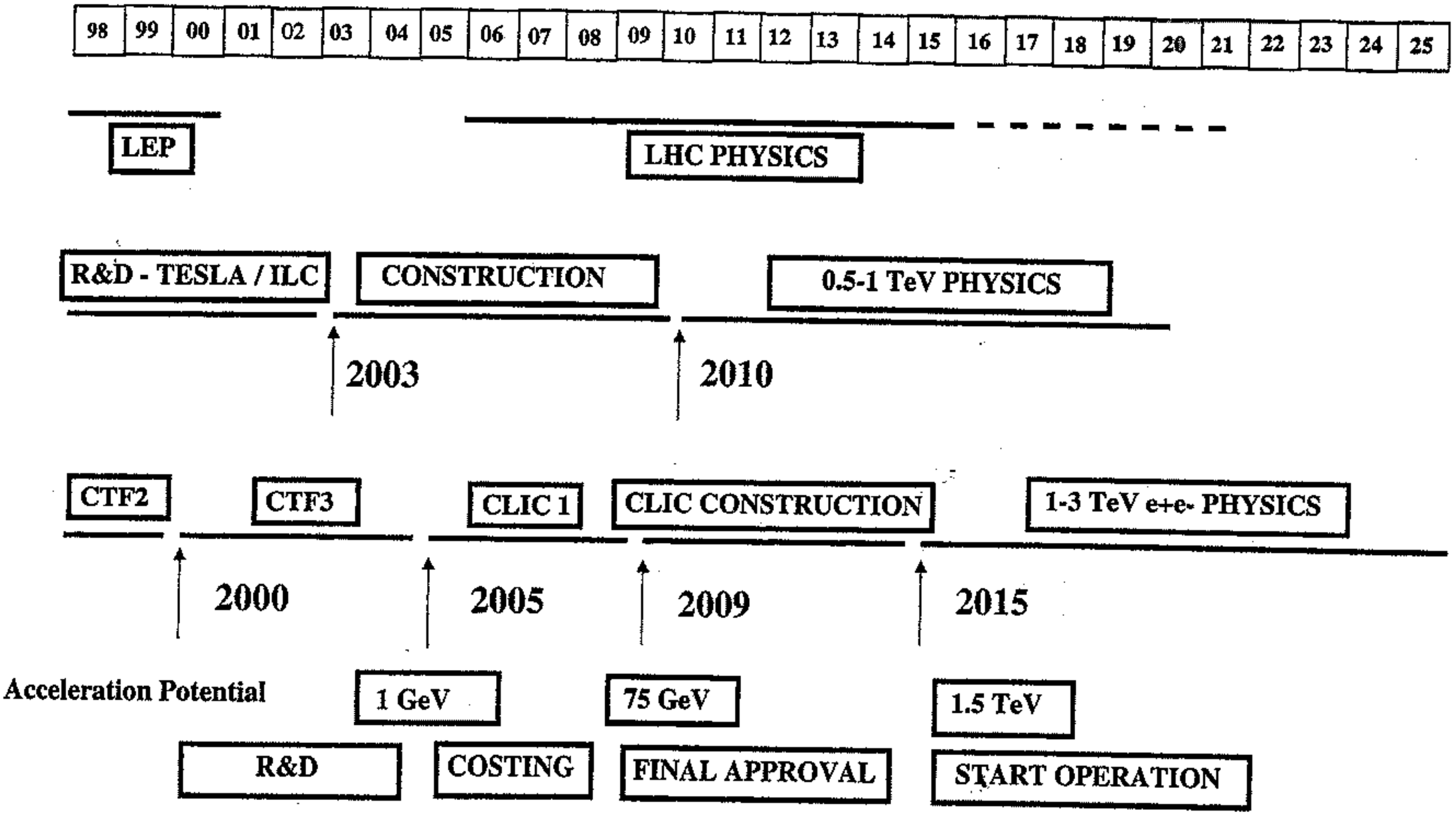


From LPI to CTF3

DBA = Drive Beam Accelerator
CR = Combiner Ring
DL = Delay Loop
SBH = Sub Harmonic Buncher

J M R
4 OCTOBRE 2000

ANNEX 1 : UNOFFICIAL CLIC SCENARIO



Collaborations:

Injector: LAL / SLAC

gun incl HV equipment and electronics : LAL, SLAC
Injector layout: SLAC
3 GHz pre-buncher: LAL

INFN

Collaboration with Upsala on specific instrumentation

Status of CTF3

Preliminary phase:
on schedule

Design well advanced
Solution for ring optics
Optics for linac and transfer lines done

New gun being built by LAL
After LEP stop: (From beginning January) modifications will start, beam expected Sept. 2001. INFN participation i commissioning ?

DESCRIPTION of the TDS

The almost classical S-band cells are supplemented with four 32 mm wide damping waveguides against transverse and longitudinal HOMs. The cell wall thickness however is about 20 mm and the extruded copper waveguides are brazed into openings in the cell wall as shown in fig. Y. The extruded waveguides constitute convenient housings at their outer extremities for the SiC absorbers that can be inserted through 16 mm mini- flanges after the final braze of the structure. The absorbers will then either have been clamped or brazed onto metal holders. By introducing the SiCs after the final structure braze thermal strains on SiC bonds can be avoided and exchangeability is obtained.

The prototype was brazed in 5 parts in vertical position (2 couplers and the main body in 3 units).During that operation the damping waveguides with prebrazed end flanges were also bonded with the cells. Finally the 5 parts were brazed horizontally.

For future TDSs a single uncomplicated vertical braze is foreseen at eutechtic temperature joining cells, damping waveguides and couplers. To avoid deformations (during the braze) of the lowermost cells the cell wall thickness will be increased to 35 mm, the total structure weight being ~160 Kg (see fig. Z).

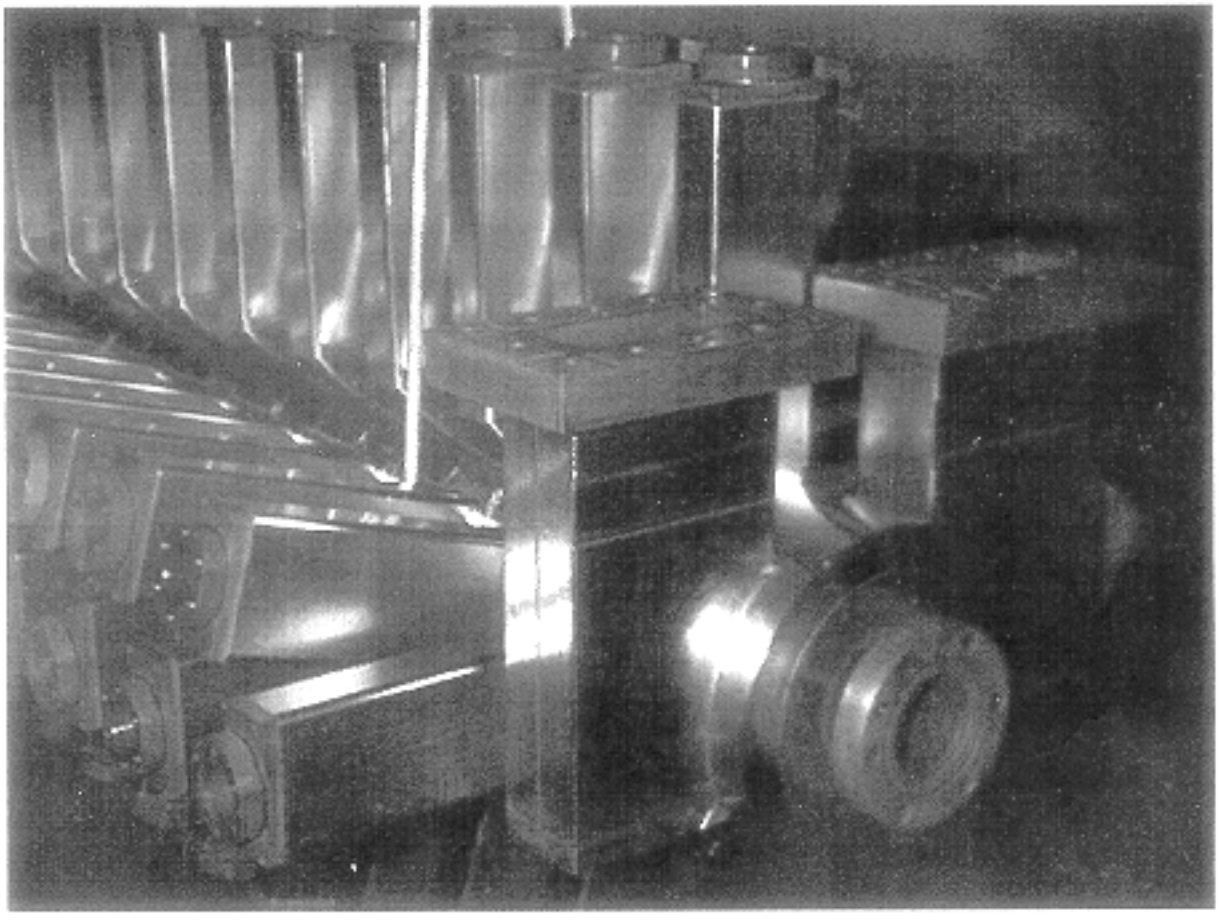
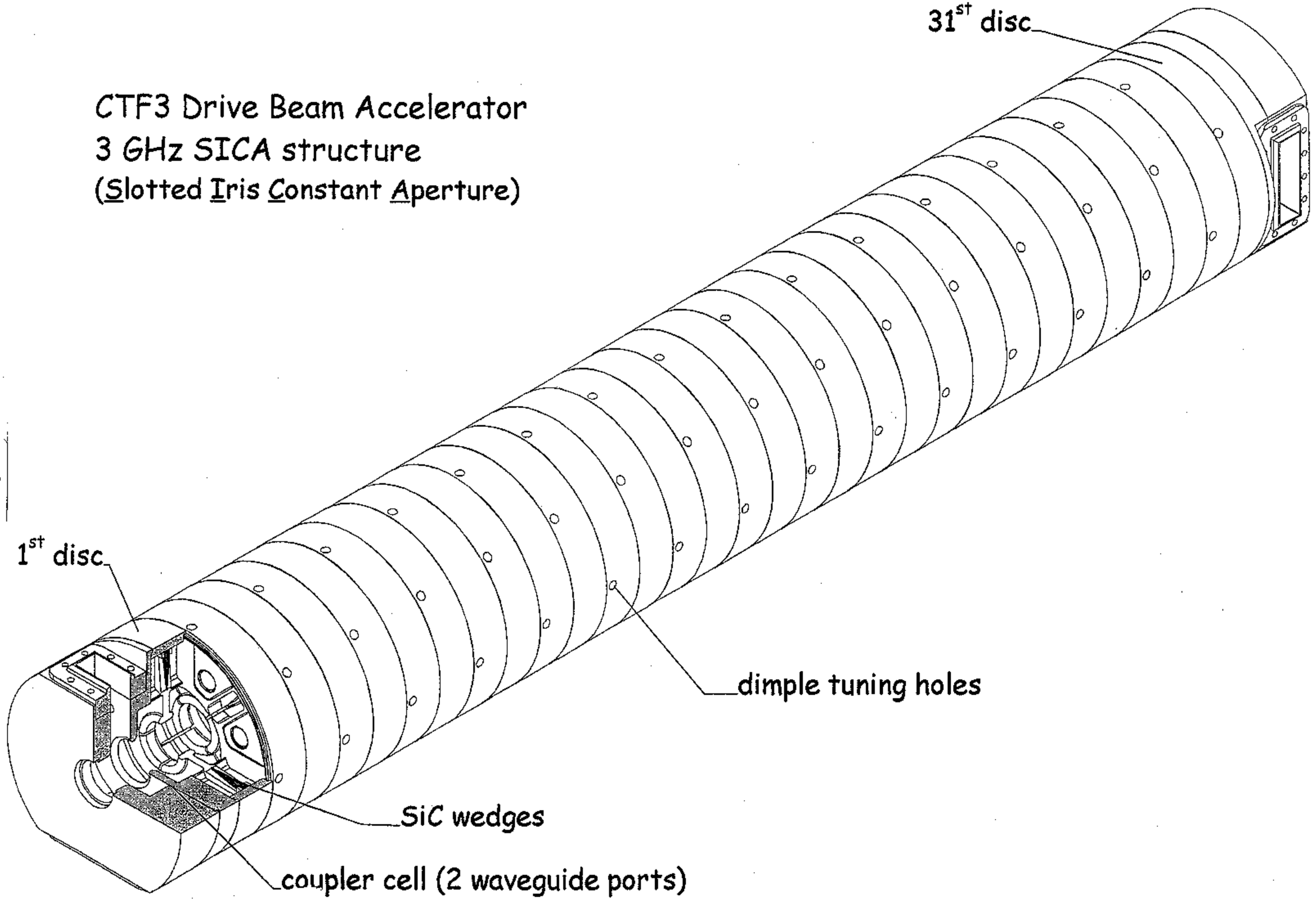
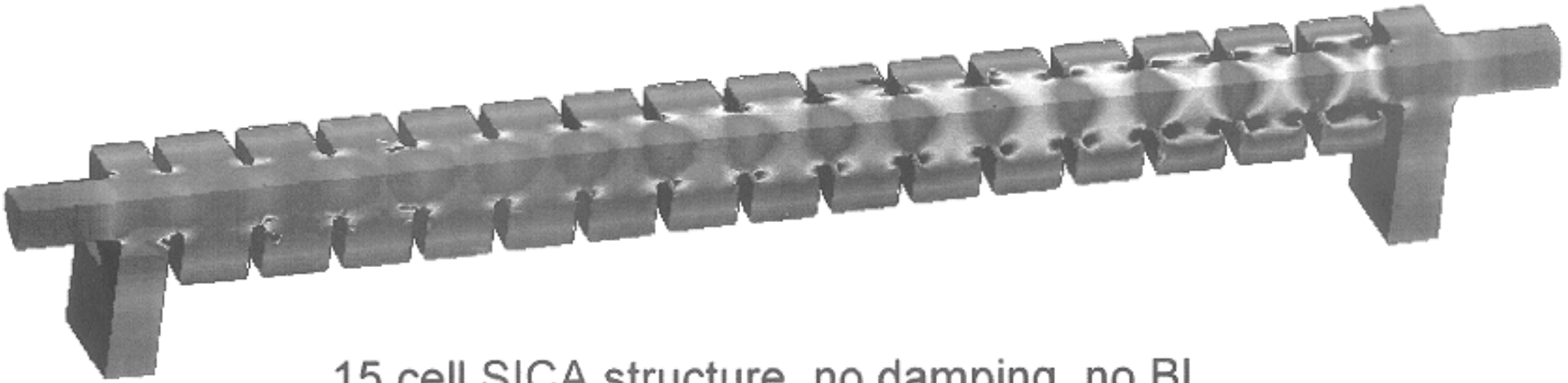


Fig. Y Brazed TDS ready for power testing

CTF3 Drive Beam Accelerator
3 GHz SICA structure
(Slotted Iris Constant Aperture)





15 cell SICA structure, no damping, no BL
complex magnitude of E

Other studies going on at CERN:

Linac structures under development:

TDS structure prototype power tested

SICA structure being developped

Installation expected to start Jan 2003

Beam dynamics, stability issues

Optics

Injector

Buncher

Sub-harmonic buncher

RF power sources / pulse compression

Controls

Beam diagnostics

PETS

INFN participation

delay loop , combiner ring , transfer lines
layout + hardware

magnetic chicane

RF deflectors 1.5 GHz, 3 GHz , kicker

Main issues / goals of this collaboration meeting (provisional)

Converge with theoretical layout of rings and transfer lines
Identify critical points
exchange of technical information on hardware
where can existing equipment be used
what needs to be built

==> Magnets/ Diagnostics/ Vacuum chamber

Impedance budget of rings ?

RF deflectors
what kind of deflector?
strategy to come to a conclusion soon
beam stability issues - finite bunch length, position errors

Power source for deflectors (1.5 and 3 GHz)

Convenors:
Optics: G.Guignard
Diagnostics and equipment: H.Braun
RF deflectors: A.Gallo