

Summary Notes of the CLIC/CTF Meeting 5 March 1993

1. Budget for CLIC-Studies 1993

Allocated: 1.13 MSF. It may be possible to receive some additional money from the DG's reserve later this year.

The programme envisaged for the CTF and photocathode work had been estimated at 1.19 MSF. See table 1.

It is vital to improve the CTF performance this year. Therefore it was decided to maintain the work on the laser and laser pulse train, on the photocathode chain: production to RF gun under vacuum, the 1 1/2+4 cells gun, the probe beam. The CTF modulator will be mounted in its final position in the CTF gallery and completed as far as possible (about 350 kFS engaged already; no new commitments possible this year).

No extension of the CTF gallery for the time being.

A 100 kFS had to be set aside for a wiggler in the FEL bunching experiment.

Remains for the original CTF programme: 590 kFS or 600 kFS less. The resulting budget distribution is given in table 1.

It will be difficult to complete the activities with the sums allocated and bare bone solutions need to be chosen in all cases.

2. Status of the Synchro Laser S. Schreiber

We want at 209 nm a laser pulse of 7 ps FWHH and an energy of $120 \cdot 10^{-6}$ J. The beam profile should be 'acceptable'.

A number of tests announced by K.K. Geissler at the meeting 29/01/93 have been made with Quanta System. A single pulse selector at the LEC output is working. This device permitted to simplify the regenerative amplifier by removing the AOM. The ra is now unfolded and contains less elements. The tests with the fibre - increasing the spectral width - were not convincing and the fibre is left out for the time being. A double pass amplifier with gain of 2000 tested successfully.

Results of tests with the pulse stretcher:

	7 to 12 ps
	15 to 18 ps
	44 to 25 ps

Thus no solution yet for long pulses.

Not implemented: the freq. reduction to 125 MHz,
the EOM,
the pulse compressor.

The performance expected at start-up - hopefully soon - scheduled 1/03,
10 ps or shorter
 $80 \cdot 10^{-6}$ J per pulse.

Finally, the adjustments of mirrors at 209 nm are critical as the reflection is a sharp function of the angle and not always best at 45°. An effort will be made to minimise the losses in the optical paths.

3. Making Room for the CTF-Klystron-Modulator

The layout made by G. Curri, 7/12/92, is adopted. As no extension to the gallery is made this year 4 racks for the focal currents and the power distribution may need to be used for the power converters for the probe beam.

4. Status of the Probe beam - see Fig. 1

The design and drawings are finished and all mechanical parts ordered. Cabling remains to be specified. The magnetic elements are available. We aim to start installation in May.

5. A Test Beam for the CLIC-BPM

The layout preferred is shown in fig. 2. The testing of the BPM's requires e-bunches with their charge centre not varying from pulse to pulse with more than a couple of microns.

Sources of instability:

- mechanical vibrations
- jitter in the energy distribution of the laser spot on the cathode and/or the laser itself

The stability of the energy distribution in the laser spot in the CTF will be measured as soon as possible. Two methods are envisaged:

- with a scintillating screen, CCD camera and data treatment,
- with the SEM grid MSG160H/V

In case the jitter is too high for BPM testing another solution can be pursued. In fact, we intend for quite a while already to bring back in operation the old e-gun used for LIL-W injection. It is a thermionic gun and together with the spare LIL bunching system a beam line can be set up with little cost. However, construction time depends on available manpower.

TABLE 1

CTF and photocathodes. 1993

4/03/93.

JNB. MADSEN

Code	Activity	Base kFS	ALLOCATED
92300	Overheads (CERN)	100.-	50.-
92305	Trials with LIPS	30.-	30.-
3 GHz	Gun n°4, multicell	100.-	100.-
	Klystron - modulator for rf gun (klystron not included)	400.-	.
	Total	<u>530.-</u>	<u>130.-</u>
92310	Equipment	50.-	50.-
photocathodes	Transport chamber labo - CTF, DC gun and preparation chamber in labo compatible with CTF gun.	130.-	130
	Total	<u>180.-</u>	<u>180</u>
92315	Pulse train generator and optical path, synchronization, laser CTF	75.-	75.-
92320	Justification probe beam and test beam transport	125.-	125.-
92325	Observation e-bunch trans instrumentation	50.-	
	Screen camera's, controls	30.-	30.-
	Total	<u>80.-</u>	
92330	Extension CTF gallery	75.-	
	Electrical installations	25.-	-
	T	<u>100.-</u>	
	Wiggler FEL	-	100.
	TOTAL	1100	690.-

15/02/93

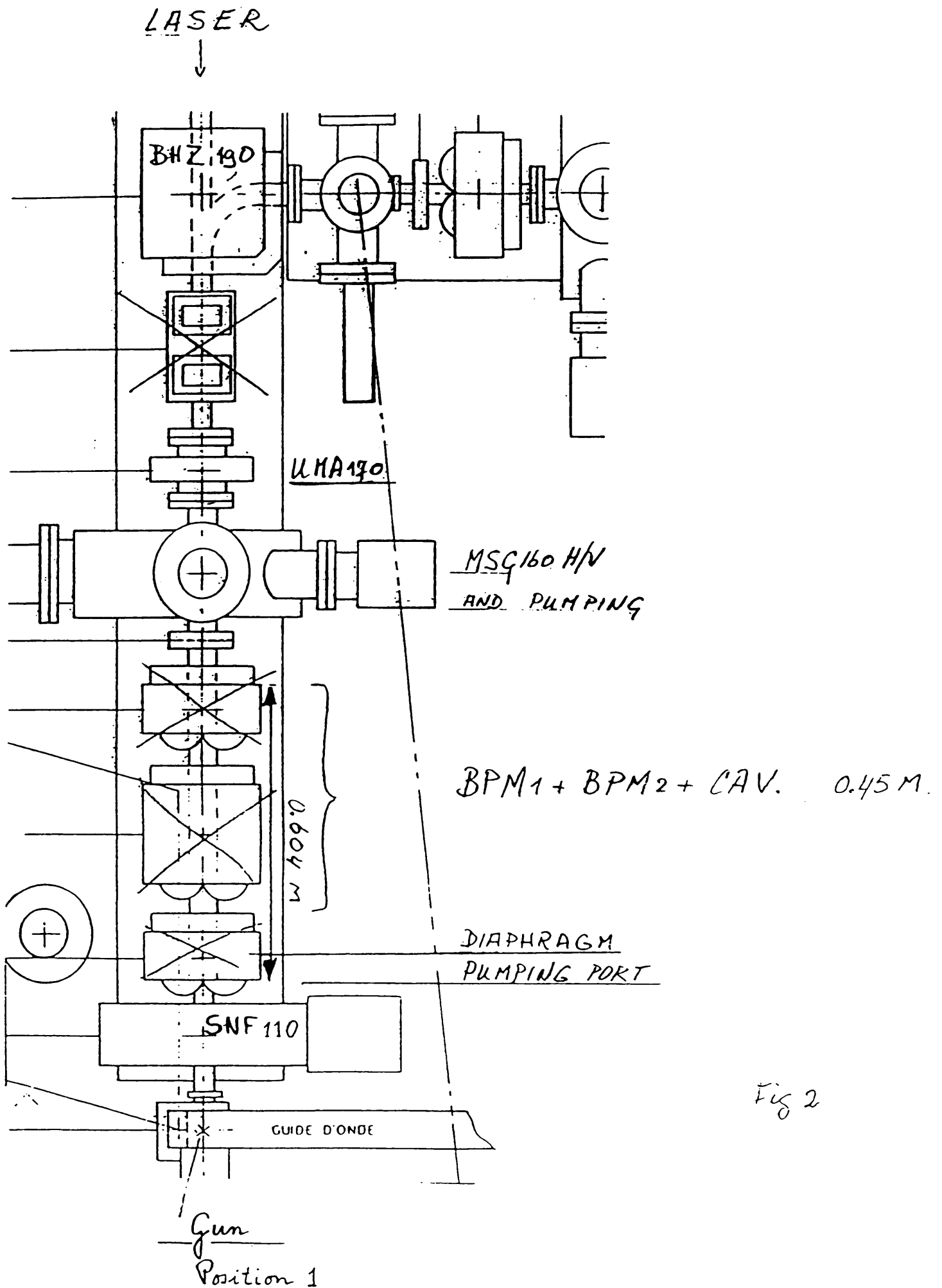


Fig 2