

Notes on the Linac Running-In Committee Meeting No 4

May 27th, 1959

1. Log Sheets

The copying machine has not yet been ordered (P.L.).

2. Progress

a) RF in tank I

The RF level has been increased up to 1 MW where some breakdown occurs. Timing adjustment on the modulators made it possible to reduce multipactor rejection to 1 or 2 o/o for an RF level between 500 KW and 800 KW, with the tank connected to tank II and to the column (but with the ion source not in operation).

The same result was also achieved through the FTH drive amplifier.

b) Ion Source

The equipment between the column and the tank has been tested, but there has been an accident on the solenoid lenses : a breakdown occurred from water in the compressed air; insulation is now rather bad.

The steering coils are ready but one of the supplies is still in modification.

Alignment has been checked : column and tank I are aligned but various components are not straight. The situation has been improved; it could probably be possible to improve still the second steering coil in this respect.

On Friday May 22nd beam was accelerated up to 10 Mev with pulsed quadrupoles. Around 350 μ A were measured for around 20 mA injected. Only one steering coil was used at injection and no lens. Tilting of the tank has not

been adjusted.

Quick measurement of output current versus RF power showed a threshold at 500 KW and a maximum around 650 KW.

Focusing was not very critical. The optimum was for $q \sim 0.75$ at the input end and 1.5 at the output end.

On the 25th of May the source stopped and refused to fire after two hours of normal operation for unknown reasons.

RF power on the source has been measured. Though there is a discrepancy between measurements on the reflectometer (8 KW) and on a dummy load (4,8 KW) the RF oscillator looks all right.

This incident on the source can have some relation with the hydrogen pressure in the source : firing comes back when the valve of the pump is shut off and the pressure raises up to 1 or $2 \cdot 10^{-3}$ mm in the column; it stops immediately as soon as the pressure drops down.

The normal pressure in the source should be 3 to $4 \cdot 10^{-3}$ mm but it cannot be measured. In the nickel spiral box it is around 10 times larger and there the pressure is right.

The beam came back for a short period possibly in connection with the operation of the vacuum valve to tank I (after closing it).

c) RF chain

Tanks I and II have been fed simultaneously and the system works very well.

d) Servo tuners

Tank I equipment showed several instabilities.

Tank II behaved satisfactorily.

3. Programme

I Week - 25/29.5.1959.

a) Ion source

- Try to recover the beam in various ways : leave the column on roughing pump for several hours before operating the source (try to have the source working during day time)
- Put ultra-violet lamp
- If there is no other solution bring it in the laboratory (the first spare source will probably not be ready before August)

b) RF

- Run tank I to collect information on it and let it improve with time
- Accelerate protons up to 30 Mev

c) Servo-tuners (continued)

II Week - 1/5.6.1959.

a) RF

- Continue running tanks I and II and collect information
- Tilting experiments for acceleration up to 10 and 30 Mev

b) Ion source

- Tests

c) Servo-tuners

III Week - 8/12.6.1959.

a) Ion source

- Repair focusing equipment and measure focusing properties of the beam
- Injection experiments

- b) RF
 - Tests and acceleration experiments
 - Focusing experiments
- c) Try to start the linac from pulses produced by RF computer
(in conjunction with RF group : P. Germain)

4. Next meeting

On Tuesday June 2nd, 1959 at 10.30 am.

P. Lapostolle.

PL/ac.

Distribution (closed)

Parameter Committee

MM. Bramham
Hereward
Huguenin
James

MM. Kracht
Lapostolle
Marsicanin
Montague

MM. Standley
Tallgren
Taylor
Vosicki.