

## THE INSTRUMENTATION FOR LPI

J.H.B. Madsen

### 1. Introduction

The different applications for the instrumentation are:

- i) consoles (one in EB1, one in the MCR)
- ii) rack mounted for signal observation, analysis in the local control area (EB1) and in the equipment buildings (EB2, 3) and the klystron gallery.
- iii) portable instrumentation for maintenance in the areas mentioned under ii).
- iv) portable instrumentation for laboratory use:
  - 3 GHz work for the LIL high-, low-power RF distribution networks, the electron guns and their modulators,
  - special beam diagnostic equipment as for synchrotron radiation light measurements,
  - LPI timing system,
  - others

### 2. Ressources for purchasing instrumentation

The LPI-budget is a construction budget, authorization for purchase of instruments has been granted as follows:

- i) for the consoles and racks in the local control area and in the MCR,
- ii) for instruments forming part of an equipment.

Instrumentation for maintenance and laboratory use should be purchased on PS exploitation codes. A sum for LPI exploitation has been requested, no allocation granted so far.

### 3. Consoles

Equipment has been bought for two standard PS controls consoles. For the running-in of LPI one console is installed in EB1, the other in the MCR.

4. For the local control in EB1

The running-in of LIL and EPA will be done from the local control area. The following instrumentation has been proposed for supporting this phase<sup>1)</sup>:

- Oscilloscope TK 7104, 1 GHz: one
- Oscilloscope TK 7854, 400 MHz, with sampling unit: one
- Spectrum analyser, HP 71100 A: two<sup>2)</sup>
- Tracking generator: one
- Network analyser, HP 8505 A: one
- Micro computer, HP 9830: one
- Miscellaneous (photo equipment etc.)

Expenditures for above instrumentation: about 500 kFrs

5. Rack mounted in EB2

For the surveillance of the kicker equipment and septa:

- Oscilloscope, storage TK 7633: one
- Oscilloscope, Philips, PM 3219: one

Total: about 60 kFrs

6. Portable equipment for maintenance (requested)

6.1 For use in EB1 and Klystron Gallery for maintenance and signal measurements of beam diagnostic equipment, modulators, e<sup>-</sup> guns, LIL injection systems etc.:

- Oscilloscope TK 2465: one
- Oscilloscope TK 7104: one

For signal analysis up to high frequencies (20 MHz):

- Spectrum analyzer HP 71200 A
- Miscellaneous (photo equipment etc.)

Total: about 250 kFrs

6.2 To be used in EB3 for maintenance the PO Group has requested:

- Oscilloscope: TK 7603: additional plug-ins
- Voltmeter, PRECITEK 108.1: one
- Function generator, Philips: one

Total: about 25 kFrs

---

1) Discussed at the EPA Design Meetings and concluded by S. Battisti  
2) One for tune measurements, the other for general signal analysis

7. Instrumentation for laboratory use (requested)

7.1 Lab 3 GHz (A. Fiebig)

- Oscilloscope (programmable)
- Network analyser, 3 GHz
- Master oscillator, 500W

Total: about 200 kFrs

7.2 Labo timing (G. Baribaud)

- Oscilloscope TK 9104, two inputs about 70 kFrs

7.3 Labo e<sup>-</sup> guns and converter (R. Bertolotto and A. Bellanger)

- Oscilloscope TK 7104
- Voltmeter, function generator and other small service instruments

about 80 kFrs

7.4 Labo synchrotron light, beam diagnostics (S. Battisti, E. Marcarini)

- Light/laser generator
- Photometer
- HF Generator

about 25 kFrs

Distribution:

G. Baribaud	D. Fiander
A. Fiebig	L. Coull
E. Kaufmann	B. Kuiper
K. Metzmacher	R. Mosig
G. Nassibian	P. Pearce
A. Susini	
J.J. Aebi	I. Kamber
S. Battisti	H. Kugler
A. Bellanger	S. Kulinski
R. Bertolotto	E. Marcarini
D. Blehschmidt	O. Martin
J.-O. Delayhaye	B. Nicolai
J.C. Godot	J.-C. Thomi
K. Hübner	D. Warner