

CERN – EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH



**CTF3 Note 038 (Min.)
PS PO Note 2001-065 (Min.)
(Klystron Reception)**

**VISIT TO THALES ELECTRON DEVICES FOR KLYSTRON
RECEPTION (UPGRADE OF TH2100 SER. No. 040, 37 MW TO 45 MW)
ON 9th NOVEMBER 2001**

G. McMonagle

*Geneva, Switzerland
14 November 2001*

Thales persons present: - J.P. Ichac, E. Boghossian, R. Marchesin

CERN person present: - G. McMonagle

TESTING OF TH2100 SERIAL NO. 040

The TH2100 klystron serial number 040 had been previously been accepted by CERN at its nominal power of 37MW (see CTF3 Note 027). Under agreement from CERN and Thales the klystron remained at the manufacturers for conditioning up to 45 MW peak power output (CERN order no. DL/1013735). After successful conditioning by Thales, CERN was requested to be present for the final acceptance tests on Friday, 9th September 2001.

On arrival at the plant I was informed that the klystron having reached nominal power (45MW) had a non-recoverable breakdown while operating at nominal power. The tube was pulsing at 35 MW on arrival, but at that time it was impossible to achieve a higher power. Thales, after some investigation, thinks that the problem comes from a breakdown at the RF window and not, as first thought from a breakdown in the gun. This is a significant observation as Thales thought that the limiting factor for operating the TH2100 at 45 MW was the applied high voltage at the klystron gun.

The test on the klystron was stopped, as Thales has now decided that the klystron needs to be “opened up” to investigate the problem. They now envisage a repair and retest of the klystron in March 2002. The repair of the klystron will be at the cost of Thales, to conform to the original specification of 37MW and they believe that they will only be able to safely achieve a maximum peak power output of 40MW and not 45MW as requested CERN. The cost of the order DL/1013735 will be adjusted accordingly as specified in the order.

UPDATE ON DEVELOPMENT OF L-BAND KLYSTRON

Mr. Marchesin presented a brief update on the progress of the development of the 1.5GHz klystron that is to be used to power the RF deflectors in CTF3.

Initial calculations have been very positive in showing that the modification of the design of the TV2022 klystron (1.3GHz) to the new TH2170 klystron does not seem to have any major difficulties. The final design report will be presented to CERN, at CERN, either in week 51 of this year or at the beginning of next year. The final date will be decided once all interested CERN persons confirm their availability. Thales does not envisage any problems in the contractual delivery time for the klystron (March 2003). See planning information below in Figure 1.

Provisional mechanical drawings provided by Thales show the mechanical constraints of the klystron that will allow CERN to study the mechanical interface needed to adapt the tube to existing S-Band klystron high voltage tanks.

Another important factor to be taken into consideration is that the focusing magnet set will be identical to the one used for the TV2022. This, unlike the S-band klystron, requires only one power supply to provide the power (180 Volts 70 Amps).

