

10th ESLS RF meeting

27 September, Morning Session, 1st part, Chairman Summary – F. Pérez

Alessandro Fabris, “Status of the ELETTRA RF system upgrade activities”

The first phase of the ELETTRA RF system upgrade is well under way and in its final testing stage. The new amplifier based in the combination of two 80 kW IOTs through a switch less combiner has been successfully installed and tested. The whole system has been purchased as a turn key system from the industry (Electrosys). Each IOT is powered independently from single HVPS and can be operated individually with the help of the switch less combiner, thus providing high flexibility and reliability. The waveguide power transmission system has been also installed and tested. It is based in ferrite circulator and load. At the moment a long term test is underway to check the reliability of the system and at the beginning of next year the plant will be connected to the cavity of the storage ring.

Erhard Huttel, “Status and future projects at ANKA”

The status and operational aspects of the ANKA RF system was presented. They have replaced the rubber tubes of the cavities because of water leaks by stainless steel tubes with Witzenmann connectors (cheaper than the usual Swagelok). A series of RF trips connected to the arc detectors has been identified as caused by radiation hitting the fiber optics. Arc detectors has been disconnected since one year and the RF trips have disappear. A project for replacing the 250 kW klystrons by a combination of two 80 kW IOTs is under consideration, since the actual power required for operation is only 120 kW.

Morten Jensen, “Diamond SR RF update”

Diamond is in commissioning period and they have reached 10 mA at 3 GeV, ready for shining the first light in a beam line. The RF amplifier system did suffer a major breakdown due to a water flooding caused by a defect gasket on the general water service system. After reparation of the damages, stable and long term operation of the RF amplifier system at 250 kW has been achieved, but still with some problems to reach a stable 300 kW. Total efficiency of 61% has been achieved. The superconducting cavities did perform correctly from the RF point of view. Two problems were found, a slow leak in one cavity and a tuner failure caused by a construction mistake on other. The helium liquefier is performing without problems, as well as the new drive amplifiers.

Lars Malmgren, “MAX II RF system: 100 MHz technology”

The 100 MHz RF system of MAX II has been in operation since two years without major problems. The system is based in commercial FM amplifiers using tetrodes, which are cheap and reliable. The power transmission line works without circulator, so a proper matching adjustment and a good beam loading compensation are necessary for stable operation. The main cavities are of the capacity loaded type and Landau cavity, working at the 5th harmonics, is a simple pillbox. Routinely a 240 mA beam is injected with a beam lifetime of 6000 mAh ($I \cdot \tau$).