N.6: Inauguration of Agricultural Radiation Processing Facility

RRCAT has developed electron accelerator based Agricultural Radiation Processing Facility (ARPF), in Devi Ahilya Bai Holkar Fruit and Vegetable Mandi, Indore. The facility has two 9 MeV, 5 kW electron accelerators developed at RRCAT, process conveyor system, safety systems, dosimetry lab and various related infrastructure systems. This is a first of its kind facility in India.

The facility received AERB license for operation under the category of Industrial Accelerator Radiation Processing Facility in last week of January 2019.

The facility was inaugurated and declared available for R&D purposes on 18th February 2019 by Dr. R. Chidambaram, DAE Homi Bhabha Chair Professor, former Chairman, Atomic Energy Commission, former Secretary, Department of Atomic Energy and former Principal Scientific Advisor to Government of India.

Dr. R. Chidambaram unveiling the plaque during the inauguration of ARPF.

Dr. R. Chidambaram and other dignitaries observing the system demonstration during inauguration of ARPF. The process conveyor can be seen in the foreground.

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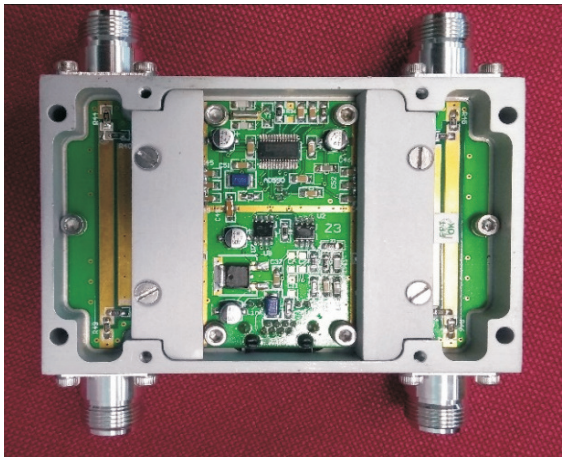
N.7: Technology transfer of radio frequency directional power sensor

For high power Radio Frequency (RF) systems, power sampling and monitoring at different junctions of the system is a necessary process for fault debugging and health monitoring. This task is usually accomplished with the help of directional couplers and RF detectors, which are mostly imported. They are required in large number for high-power solid-state RF amplifiers. In Indus-2 solid-state RF systems, nearly 1800 imported detectors along with directional couplers are operational for power sampling. In view of this, an indigenous high power (500 W) directional RF power sensor was designed and successfully tested at RF Systems Division. It has capability of discriminating RF powers propagating in two different directions, by virtue of novel aperture based coaxial to microstrip coupler. It combines the functionality of directional coupler and RF detector in a single physical unit. Also, it has built-in electronic circuits (micro controllers, communication interface etc.) for levelling, processing and communicating (on RS422/485 interface) the detected/acquired RF signal. It has been successfully prototyped and repeatable results were obtained from nearly 200 fabricated sensors. This technology was successfully transferred through Technology Transfer and Coordination Division, BARC in March 2019 and licensed to a Mumbai based vendor in April 2019.



Inside view of the developed RF directional power sensor.

The developed sensor is an indigenous product which is accurate, compact and cost-effective as compared to imported unit. Further, it does not need any meter to monitor RF power, can be interfaced to a computer and is amenable for mass production.

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