

**Purpose:** To evaluate the feasibility of the extensive applications of an ionization chamber array in radiation therapy clinics. **Methods and Materials:** PTW Seven29 ion chamber array and the customized Octavius phantoms were primarily used to perform patient-specific IMRT/IGRT QA procedures on either TomoTherapy units or conventional LINACs. BrainLAB iPlan, Philips Pinnacle<sup>3</sup> and TomoTherapy Planning are the RTP systems used to generate treatment plans. Surprisingly the unique design of PTW Seven29 does not stop it from finding its way to other dosimetry verification tasks. In combination with solid water slabs, this ion chamber array has been utilized in many dosimetrical verification procedures. With the help of vendor-supplied software VeriSoft and MultiCheck, it was utilized to check machine's performance consistency, IMRT beam fluence, dose distribution of special treatment techniques such as stereotactic body radiation therapy with either conical collimators or Micro MLC, and GRID therapy. **Results:** Dose distributions in the Octavius CT phantom from IMRT/IGRT plans were measured in the Octavius QA phantom after radiation delivery. A total of 107 IMRT/IGRT QA procedures passed the Gamma analysis criteria 5% and 5 mm, while 18% passed 3% and 3mm criteria. Failed points were mainly in low dose and high dose gradient regions. A strong agreement was found between two methods (ion chamber and film dosimetry vs. ion chamber array alone) for checking machine's performance consistency. It has also shown to be an effective tool for GRID QA procedures. **Conclusion:** The PTW Seven29 ion chamber array is a reliable accurate and efficient dose distribution verification tool for both patient-specific and machine-specific QA measurements. It is also one of the essential components of a paperless and filmless radiation therapy facility.