

**Purpose:** In this study we describe quality assurance (QA) results of 356 modulated beam using MartiXX (IBA Dosimetry, Sweden). Intensity modulated radiotherapy (IMRT) using segmental multileaf collimator (MLC) is currently applied for different type of cancers at our institution. Dosimetric QA of all modulated beam is done as a part of pre treatment QA protocol. **Method and Materials:** XiO (version 4.34.02) treatment planning system is used to generate optimized IMRT plans. Oncor Expression linear accelerator, equipped with Optifocus MLC, is used to deliver the IMRT treatment. MartiXX, 2D ionization chamber array, consists of 1020 air-vented plane parallel cylindrical ionization chambers arranged in a 24X24 cm<sup>2</sup> area. Each chamber has 0.45 cm diameter, 0.5 cm height & center to center distance is 0.76 cm. The device runs with two separate counters to avoid dead time. Resolution of the device is 0.76 cm and can be interpolated down to 0.1 cm. **Results:** We have analyzed all beams using gamma, distance to agreement (DTA), profile comparisons, measured dose (relative/absolute), visual comparison & coefficient of correlation. We have found gamma index & DTA is pass in more than 97 % beam with a 3% & 3 mm passing criteria and coefficient of correlation was 0.987 (SD 0.047). **Conclusion:** We have found MartiXX to be energy & dose rate independent. The minimum read out time is 20 ms, it allows us to measure and analyze dynamic processes like dynamic IMRT, start-up process of the linear accelerator, build-up process of a virtual wedge. The disadvantage of MartiXX for IMRT QA is the limited resolution, resulting in limited sensitivity to MLC failures. MartiXX is a useful device for IMRT pre treatment QA as it is time saving, efficient, easy to use and it can be used for both relative and absolute dose measurements.