Purpose: To evaluate a commercial system based on ion chamber detectors by several dosimetric measurements, in order to use it as part of an IMRT QA program.

Methods: The device 2D Array Seven29TM was evaluated for clinical assessment of IMRT plans. This is a two dimensional detectors array with of 729 air-filled ionization chambers. A Clinac iX was used in different fields, the first irradiation open and all of them with the same quadrant blocked by the MLC afterwards, using the MLC Shaper of Varian. The SSD is set to 95 cm, with 5 cm of RW3 in the back of the device for backscatter production and 4.5 cm in front of it for build up. In order to evaluate the 2D array measurements, a 3D PinPoint chamber was irradiated for the same configurations.

Results: There exist a good agreement between measurements from 2D Array and the chamber, even when both methods had a different distance to effective point of detectors (in the array the 100 cm distance is in the entrance plane of the air-filled chamber volumes, while in the PinPoint chamber is in its central point). Reducing the field size, the PinPoint chamber keeps its response but the array takes not expected values especially in the points out of the centre. The fact that the PinPoint has a very small volume gives it a better resolution, and the bigger volume size of the chambers in the array restricts its detection capabilities in big gradient areas.

Conclusions: The evaluated system shows a good performance and similar values than novel methods. Consequently, this system might be a good tool to be incorporated in a patient dependent QA program even for absolute dose, taking into account the issues regarding to vertical position of detectors and incidence of the leaves.