The dosimetric characteristics of multi-field dose distributions shaped by mini-MultiLeaf Collimator (mMLC) have been measured and compared to those generated by alloy block shaped fields and conventional (1 cm leaf) MLC. The mMLC designed by BrainLab and Varian has 26 pairs of leaves varying in width from 3.0 mm to 5.5 and covering up to a 10cm by 10.2 cm field at 100 cm. This investigation assesses the performance of the mMLC for field sizes characteristic of conformal treatment volumes (5 cm by 5 cm and 10 cm by 10 cm) and different multi-field arrangements. The mMLC orientation was studied for a "worse" possible situation where the diamond shaped field has maximum stair-step effect. Radiochromic film was exposed in a water filled cylindrical phantom 30 cm in diameter. Film was placed in the three cardinal orthogonal planes or in a plane sandwiched midway between two fields. The 90-30% distance characterizes the resulting dose fall off gradient. The deviations of the 30, 50 and 90% isodose contours from those produced by alloy blocks were measured as an indications of the conformity of the distribution. We find that the deviations are smaller for the mMLC than the prior finding for a conventional MLC. Dose fall off distances are comparable among blocking systems. Details of the dose fall off characteristics of the mMLC as compared with conventional MLC and alloy blocks will be presented.