



Figure 5.4 Oscilloscope traces showing the influence of a steady toroidal magnetic field on the toroidal current driven using an  $l = 20\text{cm}$ ,  $m = 0$  coil structure. The antenna for these experiments consisted of 4  $m = 0$  coils of 3 turns each, per RF phase. The timescale in each oscilloscope trace is  $10\mu\text{s}/\text{division}$ . (a) - Line 1, (b) - Line 2 generator current waveforms. The vertical scale for both lines is  $0.67\text{kA}/\text{division}$ . (c) - (f) Rogowski belt measurement of the driven toroidal current for each of the two indicated values of the steady applied toroidal field. The asterisks denote the field value of each pair for which the larger driven toroidal current was observed. Experimental conditions: filling pressure= $0.35\text{mTorr}$  Argon, line charging voltage= $20\text{kV}$ , no vertical field.