1. GFT6004, a 50Ohm load on the CH1 input. 2520 samples. The rms noise directly measured is 180uV.

2. A strength of a sine signal is adjusted until the rms reading is sqrt2 times the rms without signal. So, Noise=Signal.

The GFT rms = 180uV, xsqrt2 -> 250uV. With a sine signal 190uV (5MHz, 170mV p-t-p, /2, /1.4, (–50)dB shown in Fig. 1), the value obtained is 250uV (shown as 270uV in the table on the right). So, really, the GFT noise is ≤190uV= 1.5bit. OK.
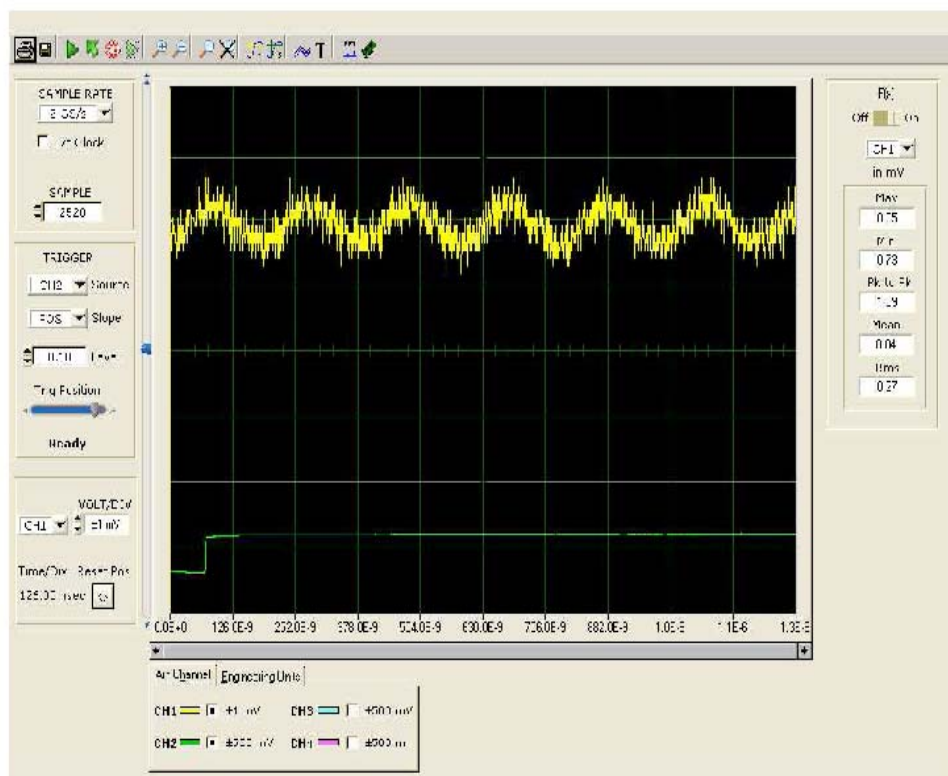

Fig. 1.

3. ADC Driver + GFT. Now as the GFT input is 50Ohm, the driver gain = 1.9.

The DR+GFT rms = 230uV, xsqrt2 -> 320uV. With a sine signal 236uV (5MHz, 110mV p-t-p, /2, /1.4, (–50)dB, x1.9 shown in Fig. 2), the value obtained is 320uV (shown in the table on the right). So, the DR+GFT noise really is 230uV. Calculating, the DR rms = 140uV. Compare to 120uV measured with Cleverscope.
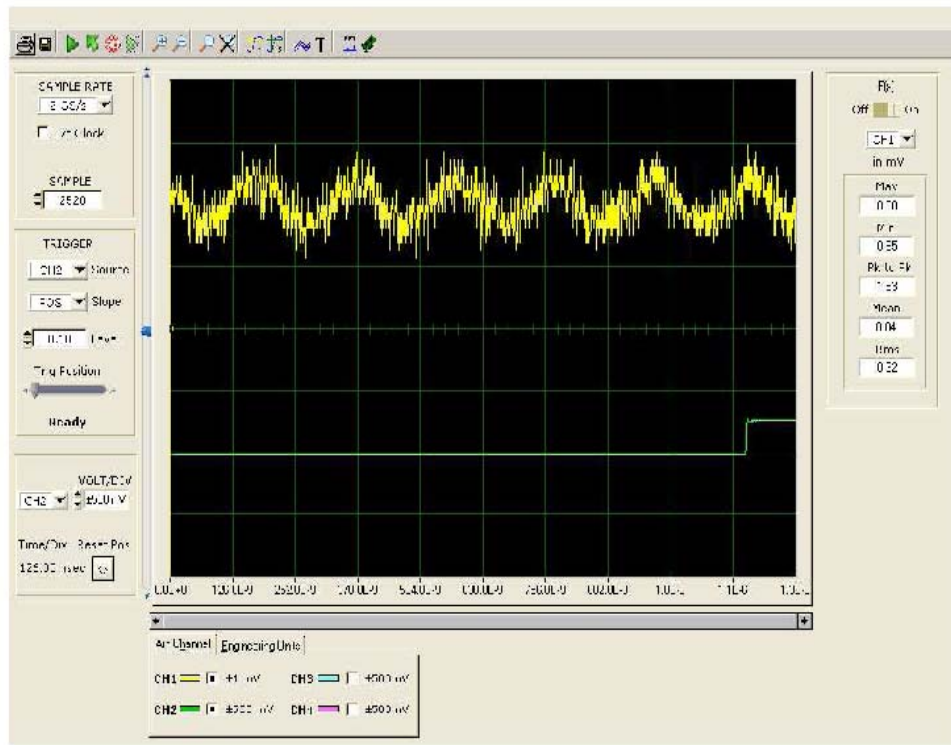

Fig. 2.