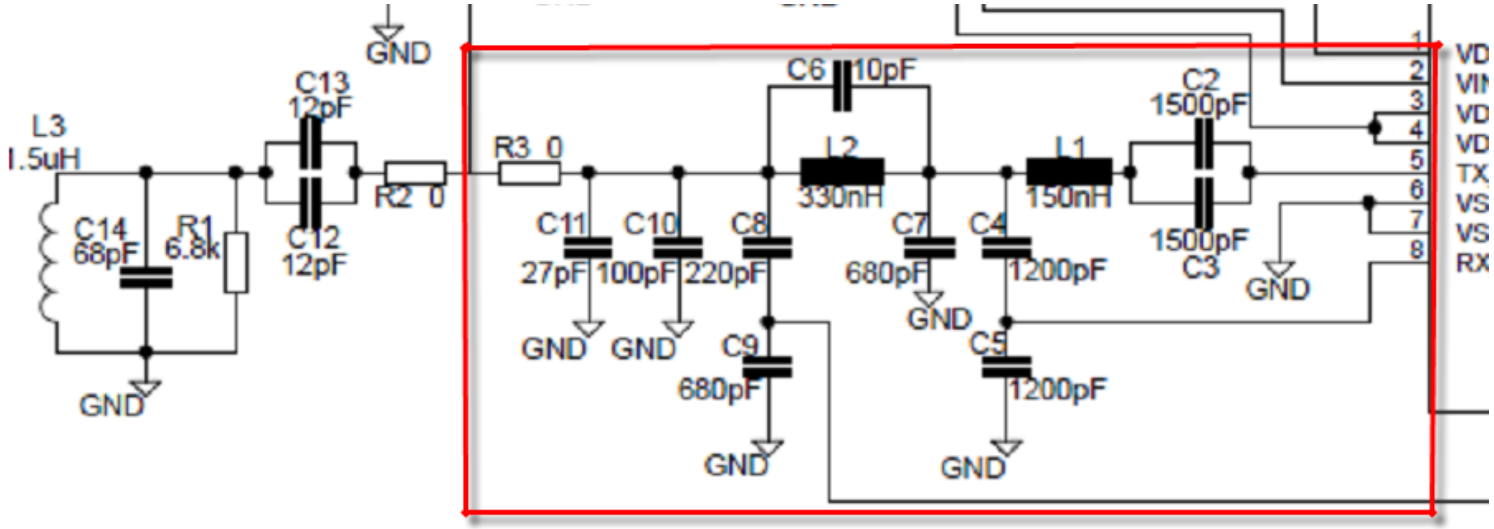
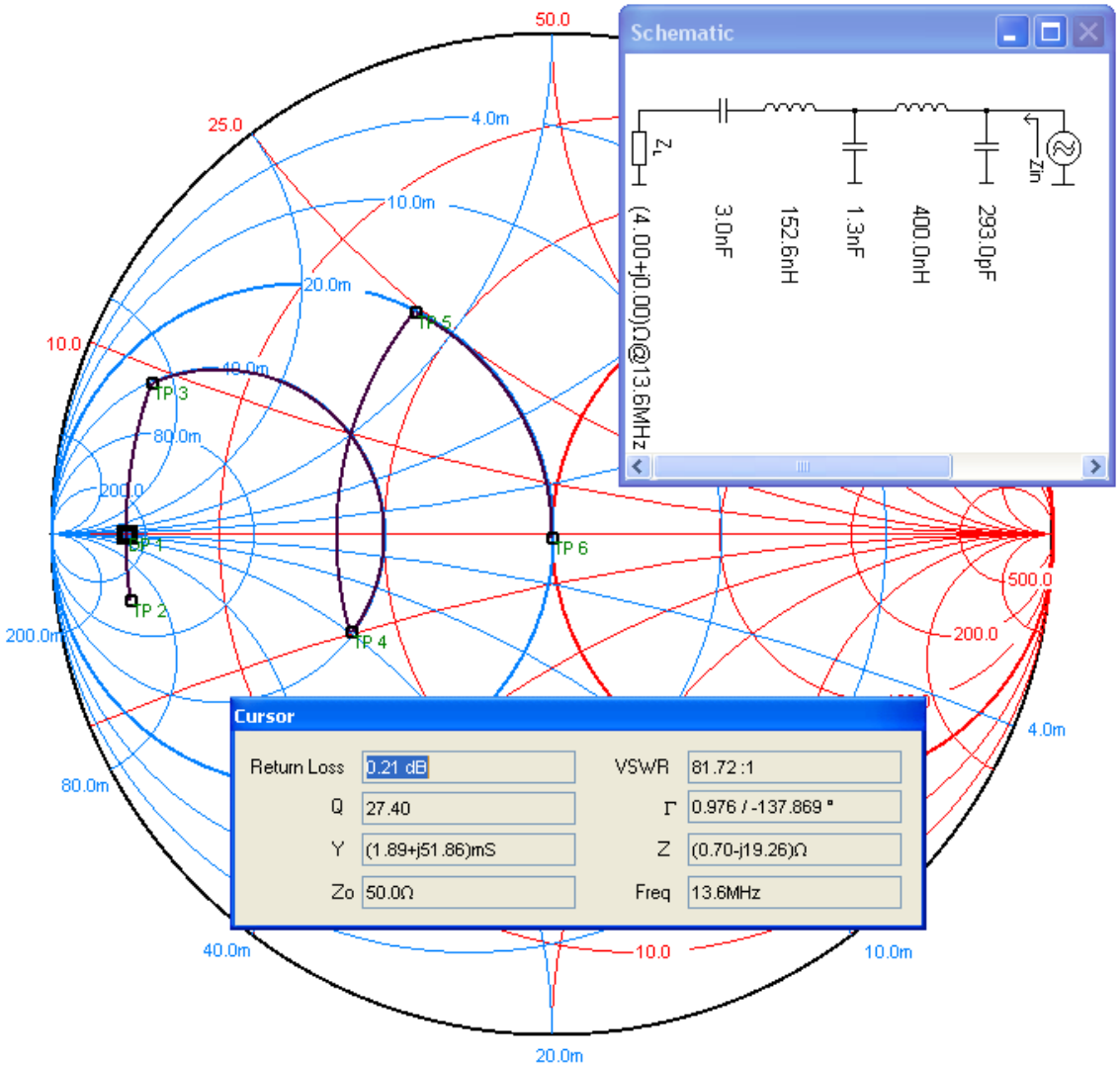
Impedance Matching Circuit from TRF79xx out to Antenna (cont.)

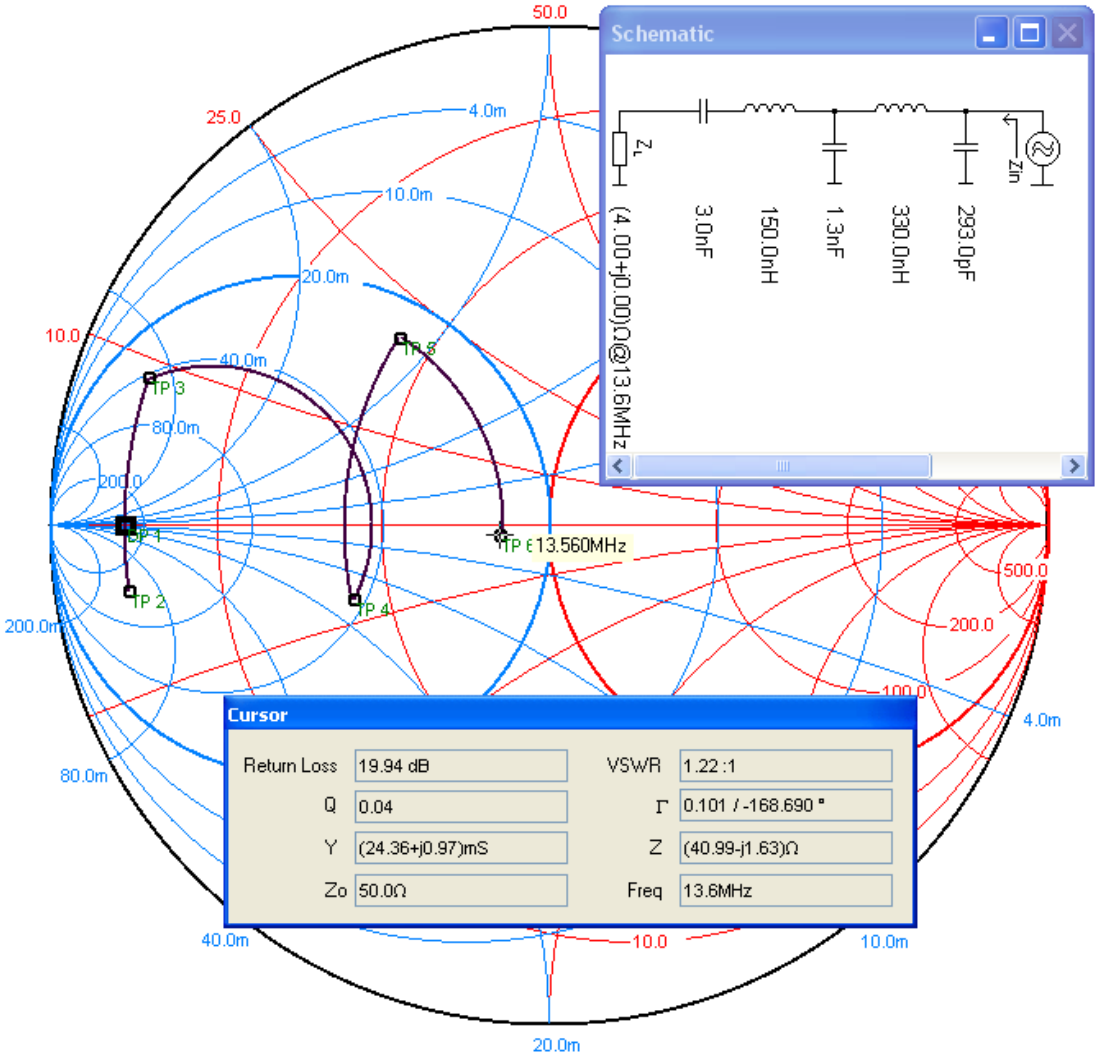
- The TRF79xx parts exhibit ~4 ohm output impedance which must be impedance matched to 50Ω in order to connect to matched 50Ω antenna (for full power transfer)
- This easiest way to show this is to lump the elements of the circuit and express on a Smith Chart for verifying values, then moving to standard values available for low cost production worthy circuit.
- The section outlined in red is what we are discussing now.



Impedance Matching Circuit from TRF79xx out to Antenna (cont.)



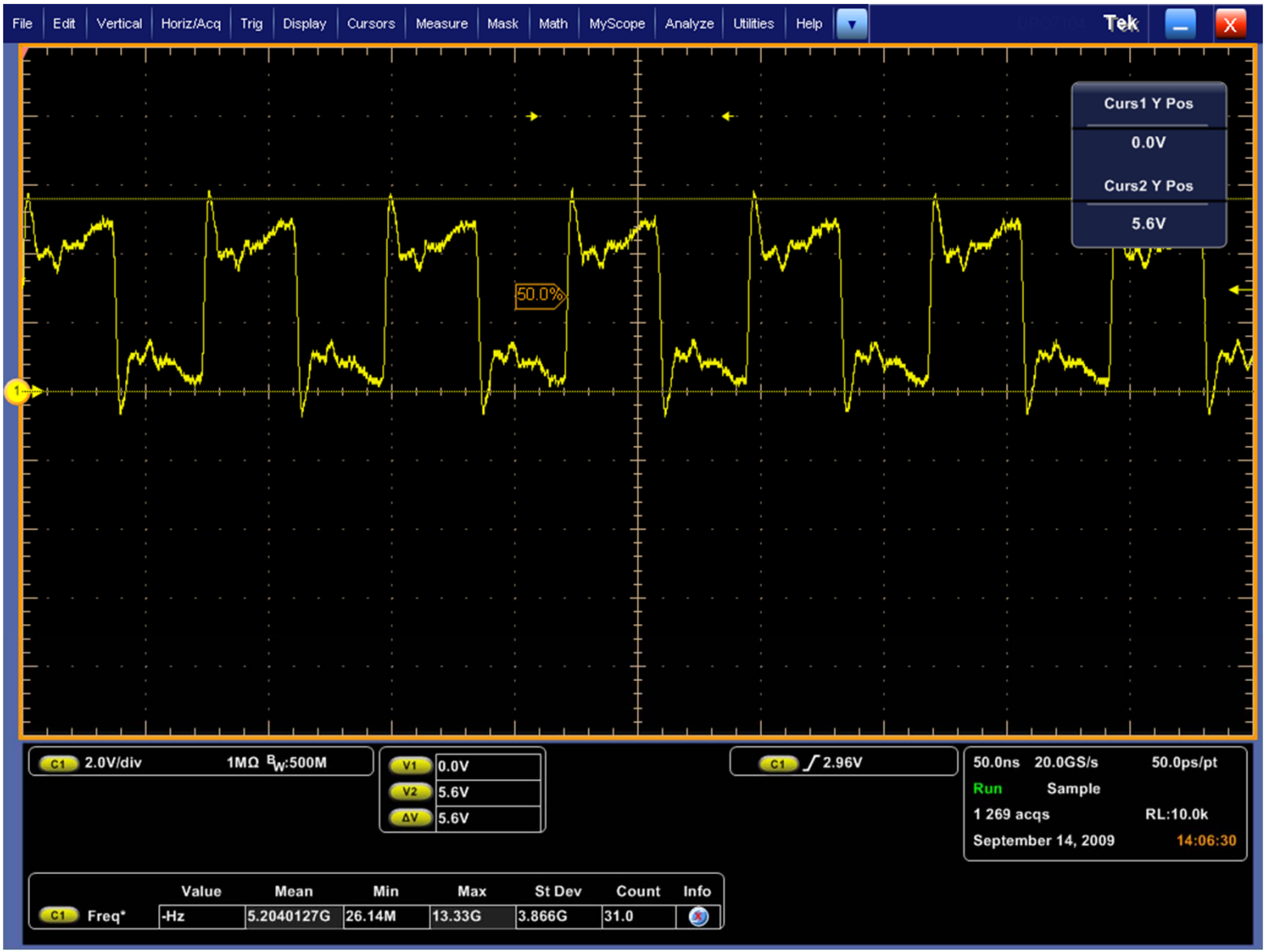
Impedance Matching Circuit from TRF79xx out to Antenna (cont.)



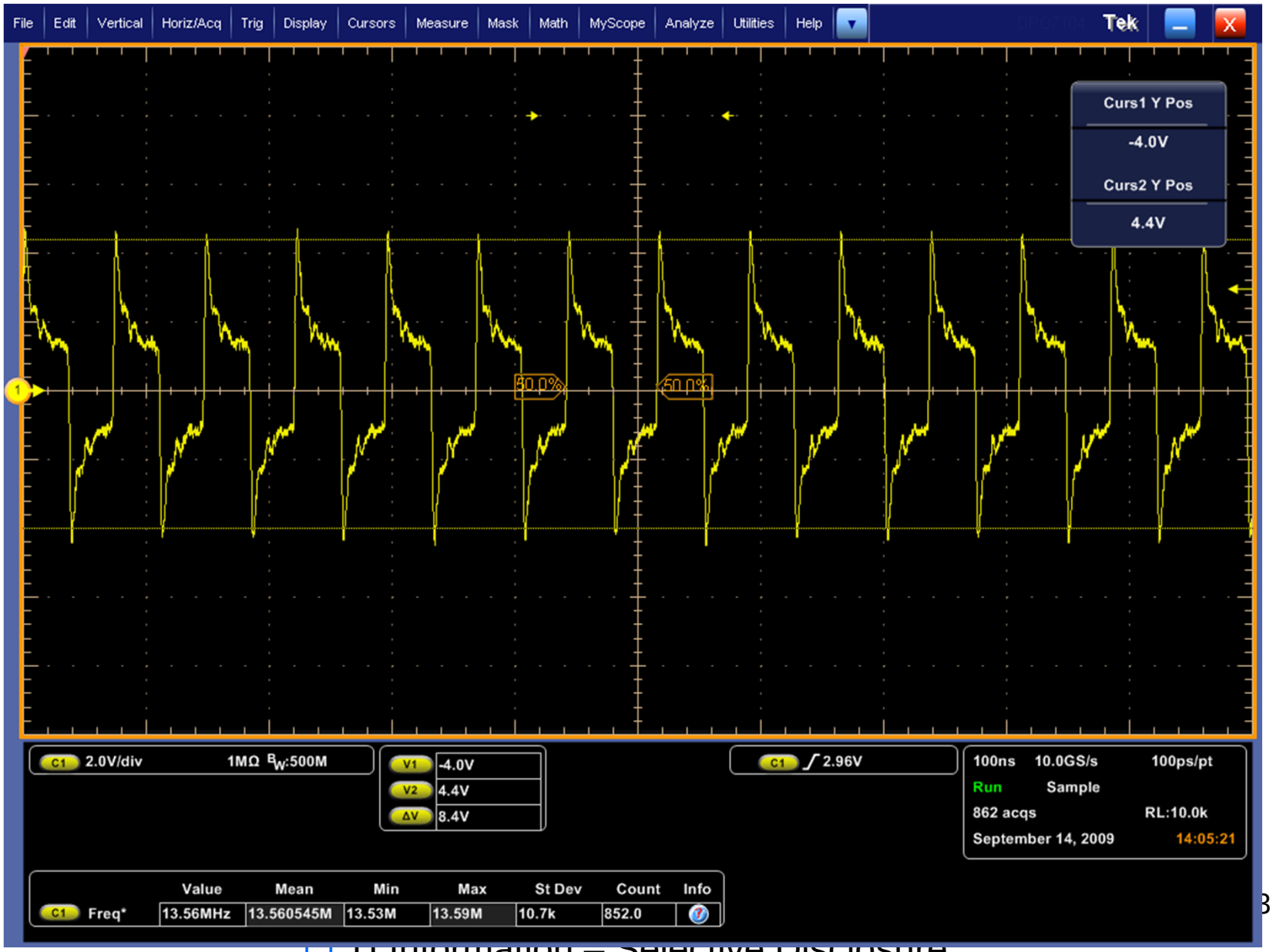
RF Test Points

- After the circuit has been constructed – we can then turn on the TX signal by writing register 0x00 with 0x21 and check the signal levels to confirm/correlate that component values and basic RF section of the circuit are OK.
- The following six slides are for reference to this check, but understand these signals are not absolute!
- These were captured from TRF79xx EVM, running at +5VDC In, with Full Power out setting.
- For those customers using different (lower) VIN, shapes of signals should be same, but will be lower level (although general ratio relationships should remain)

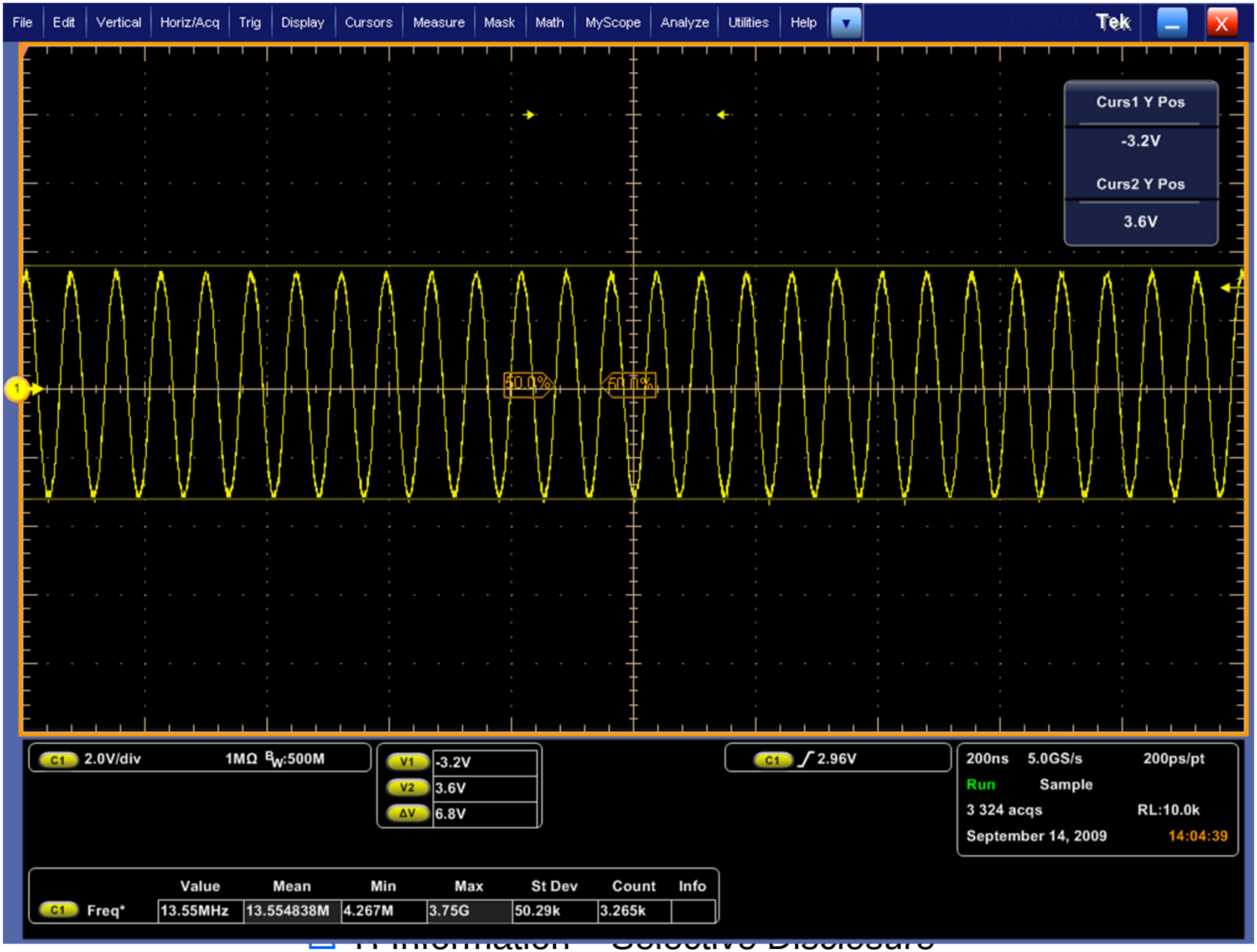
TRF79xx Pin 5 (TX_OUT)



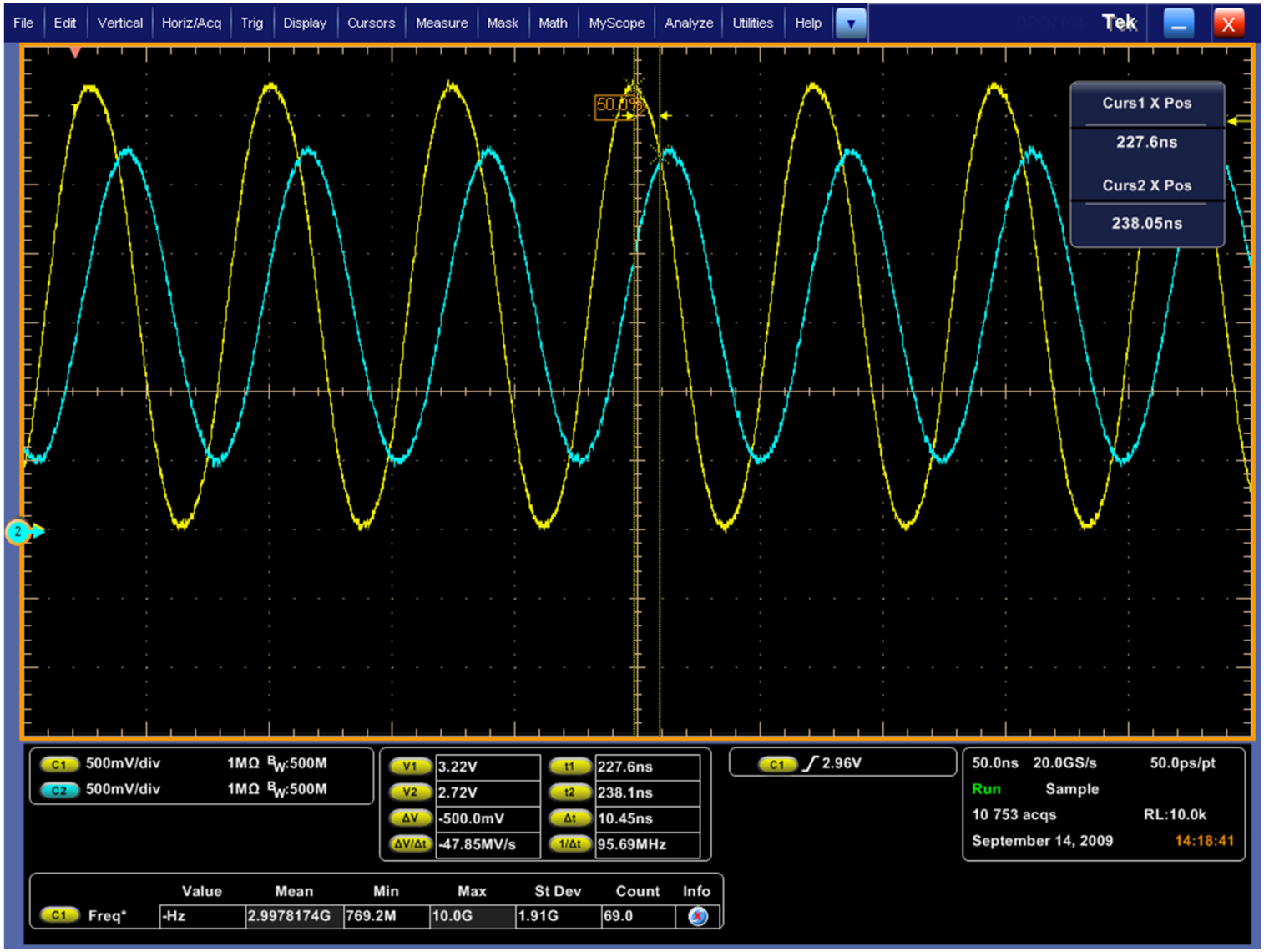
In-between DC Block Capacitors and L1



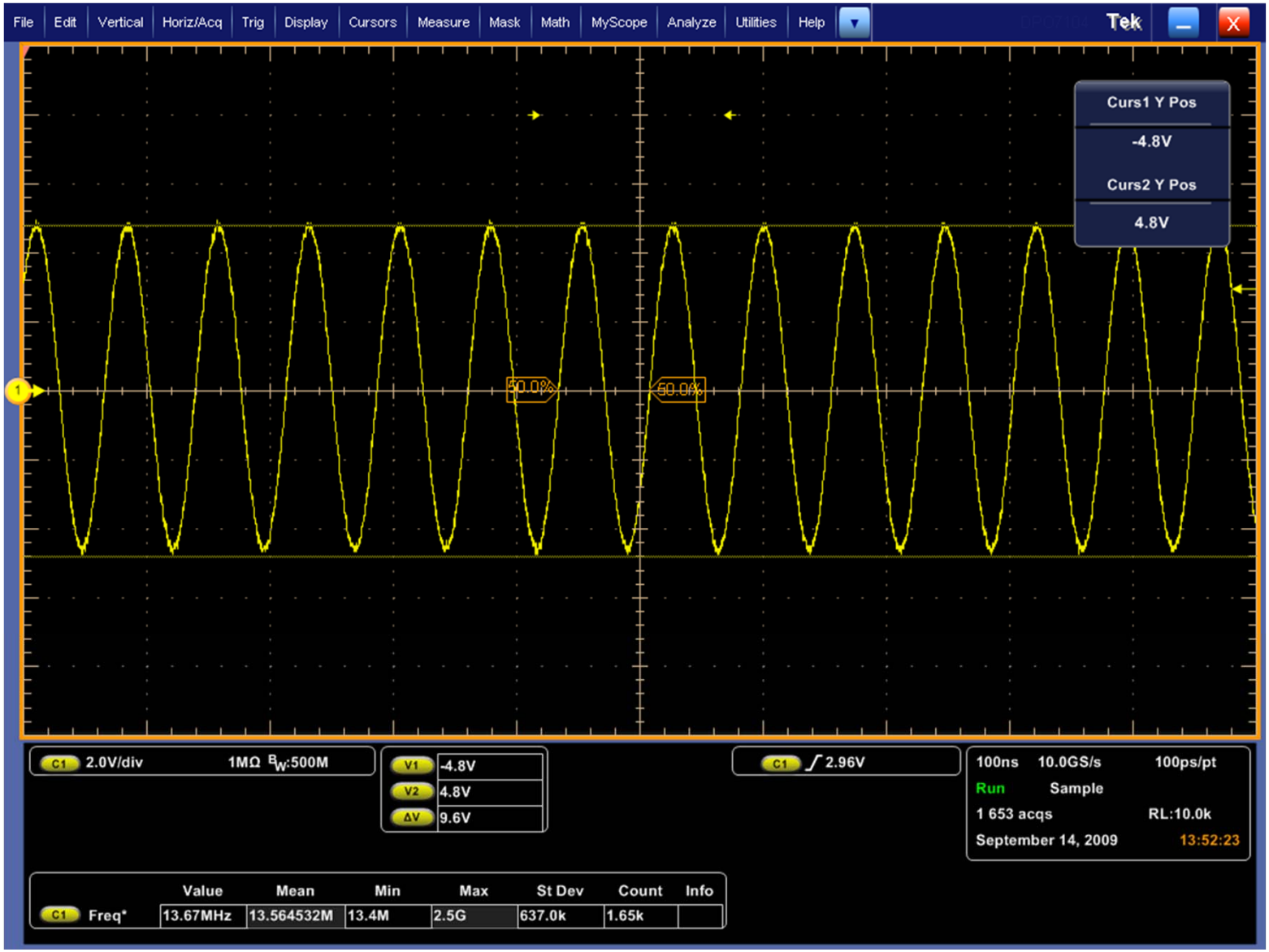
In-between L1 and L2



TRF79xx RX1_IN1 and RX2_IN2 (pin 8 = yellow & pin 9 = blue)



50Ω Impedance Match Point (X2 or X3 RF Test Port)



50Ω Impedance Match Point
Spectrum Analyzer Capture with Power Meter
(showing fundamental and 2nd harmonic)