

Fast-80 Target Source Waveforms Point-to-Point at 25 Meters

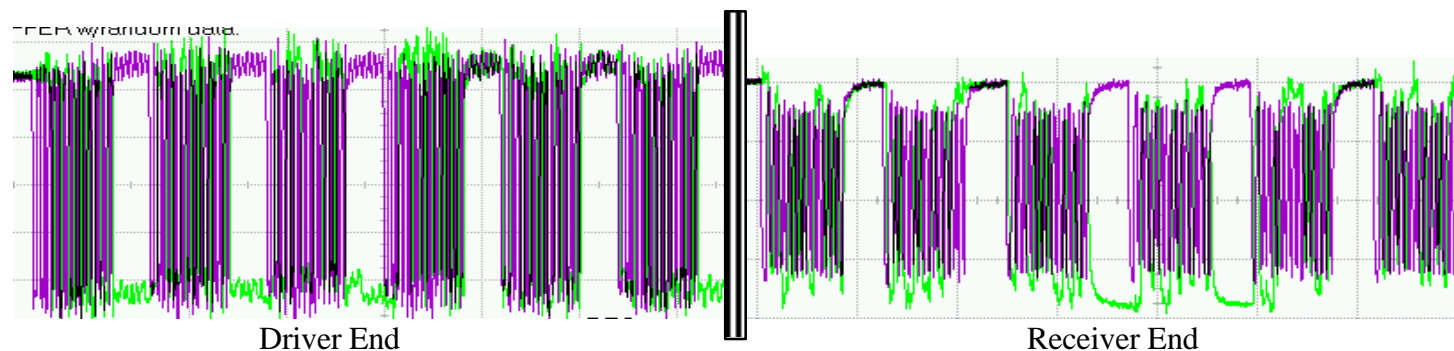
Test Description: Setup - Test board 25m from I-TECH 6080 tester, using 24.7m round cable with short Teflon ribbon extension at each end to allow probing.
Data captured - REQ and data bit 2 at each end with several time scales and bit patterns.
Data was observed with TEK P6246 differential probes

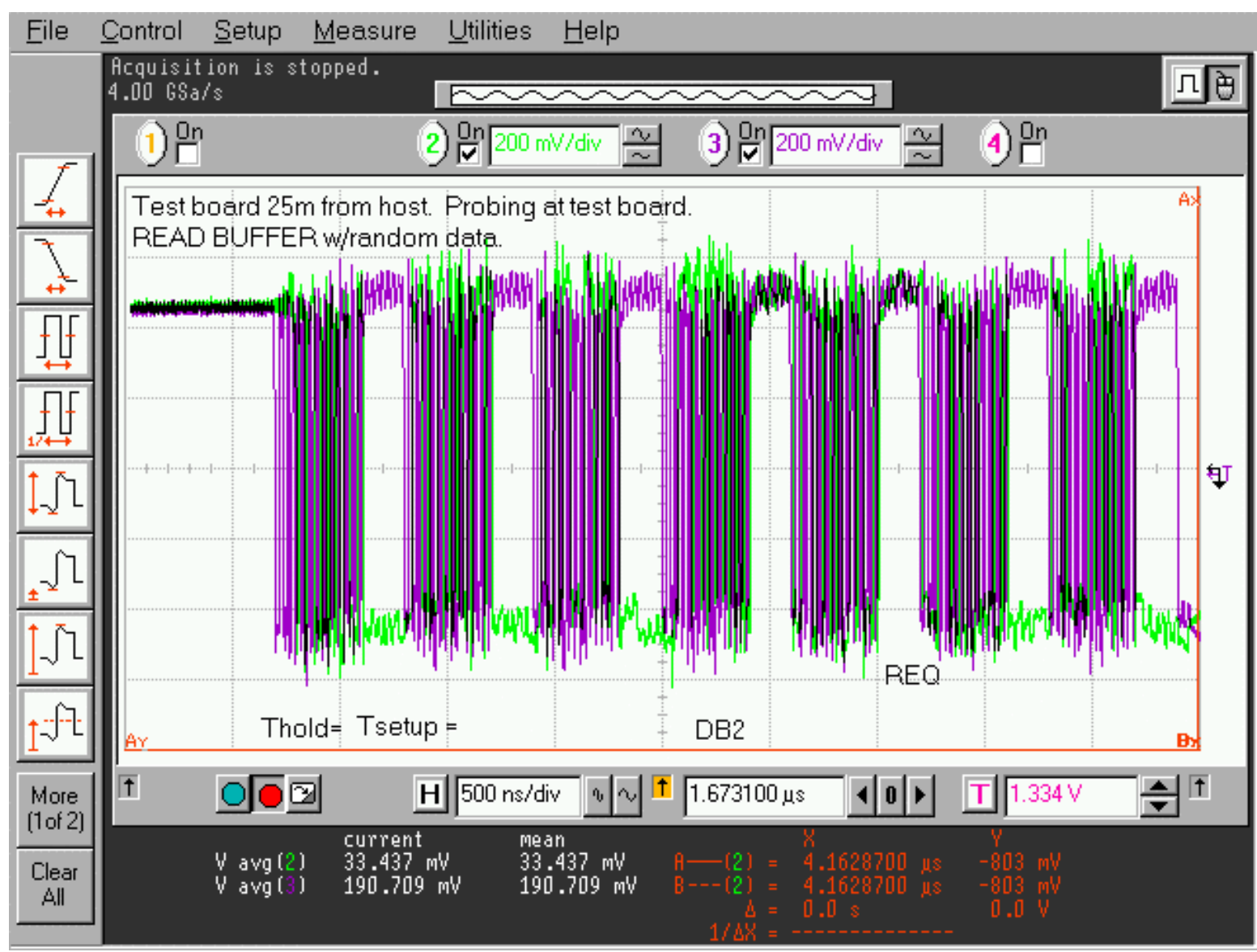
Observations:

1. REQ (constant frequency) is attenuated by 40-45% by 25 meters of cable. The resultant amplitude still exceeds +/- 200mv from the common mode level.
2. Random data has a variable attenuation dependent on the data pattern. Signals appear to reach a stable maximum level within 5-6 bit times.
3. The worst observed setup and hold times still provide a comfortable timing margin. CAUTION: this doesn't mean it will work in all cases; only that the nominal case should work.
4. The I-TECH tester, sampling data only on the leading edge of REQ, correctly captured alternate words of an incrementing data pattern into its read buffer. Three captures were compared visually. Our ability to do Write/Read/Compare testing with varying data patterns will have to wait until we have a Fast-80 host adapter.

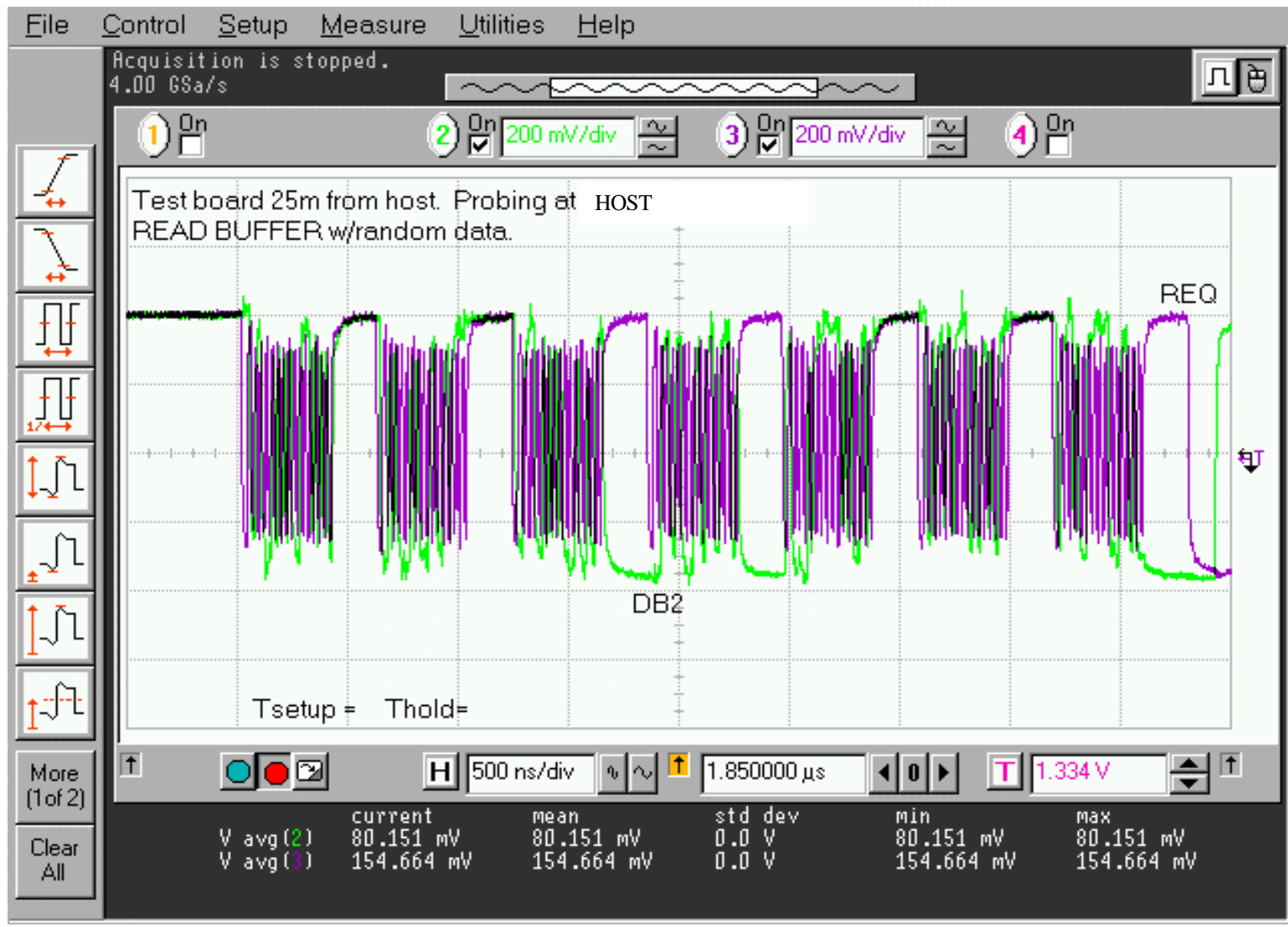
Note: We planned to use the same 512 byte pattern for captures at each end of the cable. However we managed to hang the bus (for the thousandth time) while moving the probe attachment from one end to the other and had to reset and start up with a new random pattern. Therefore the short bit sequences, while comparable, are not identical. Didn't have time to redo the whole sequence of captures.

REVISION Note: Rev0 presented at June 19 SPI-3 meeting. Rev1 corrects some typos in the text as noted at the meeting.

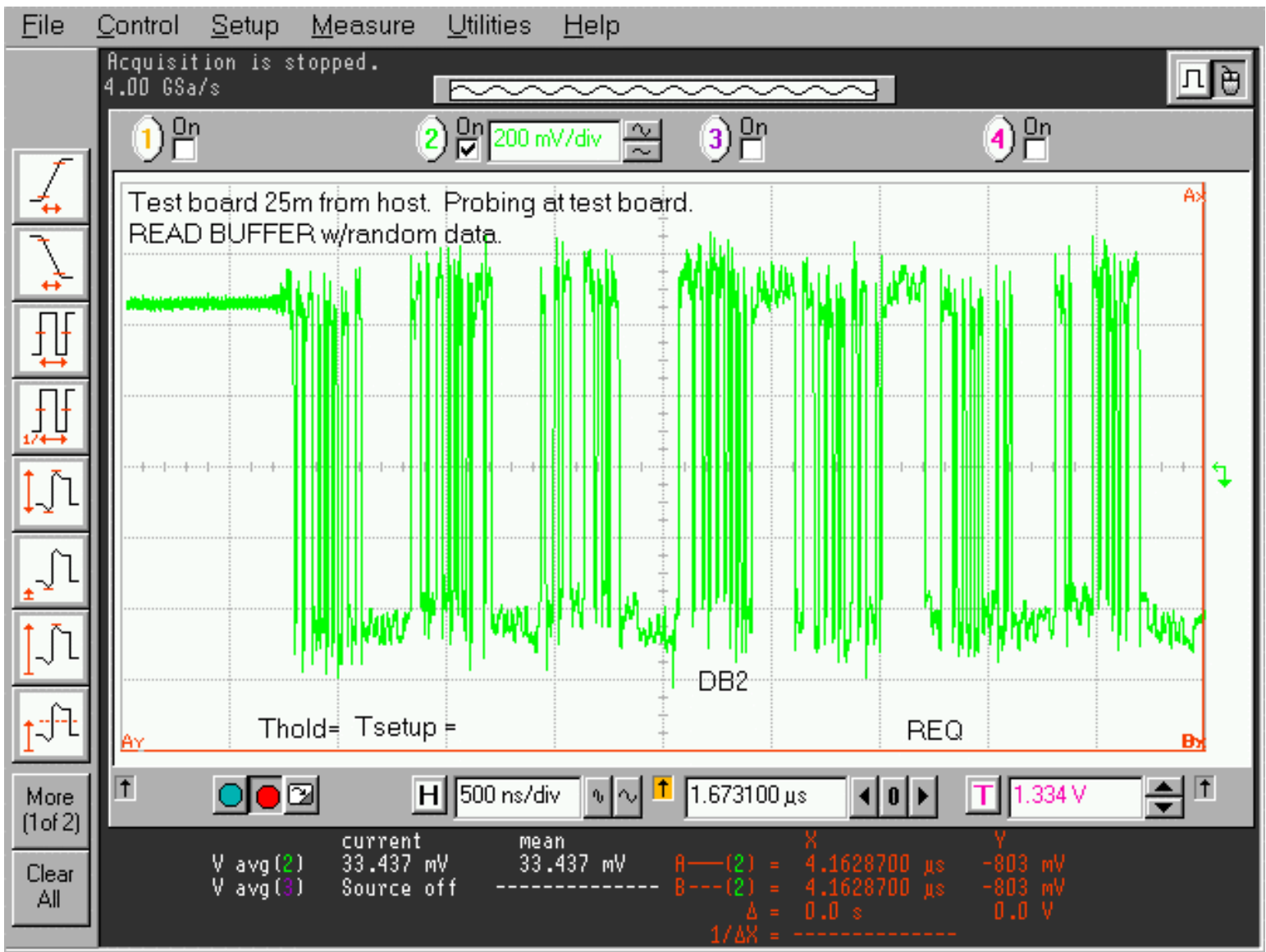




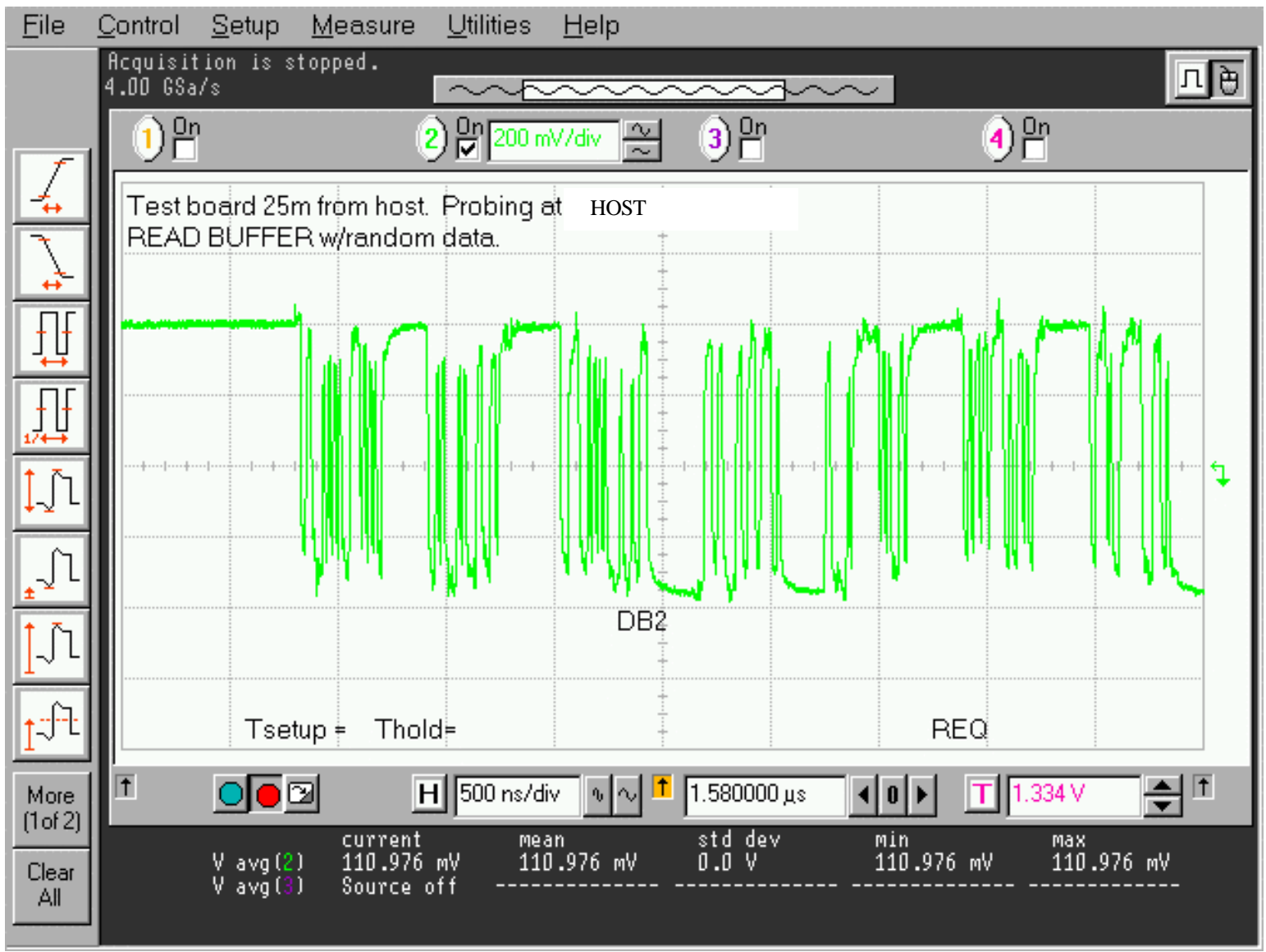
Slide 1: REQ and DB2 at target end of 25m cable. 512 bytes transferred in 7 bursts. Differential probes, random data.



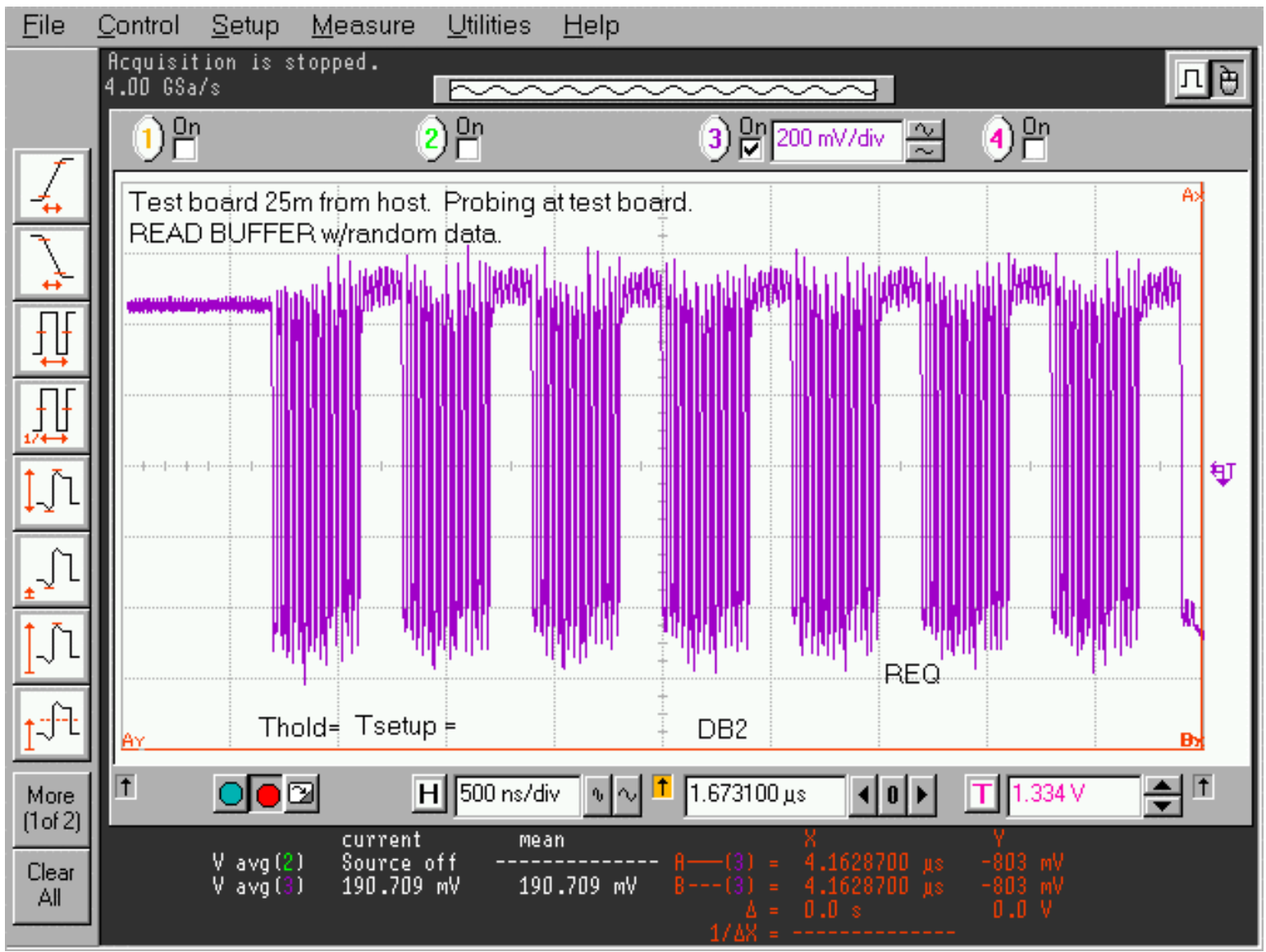
Slide 2: REQ and DB2 at host end of 25m cable. 512 bytes transferred in 7 bursts.
Differential probes, random data. Screen heading should say “Probing at host”, not “probing at test board”.



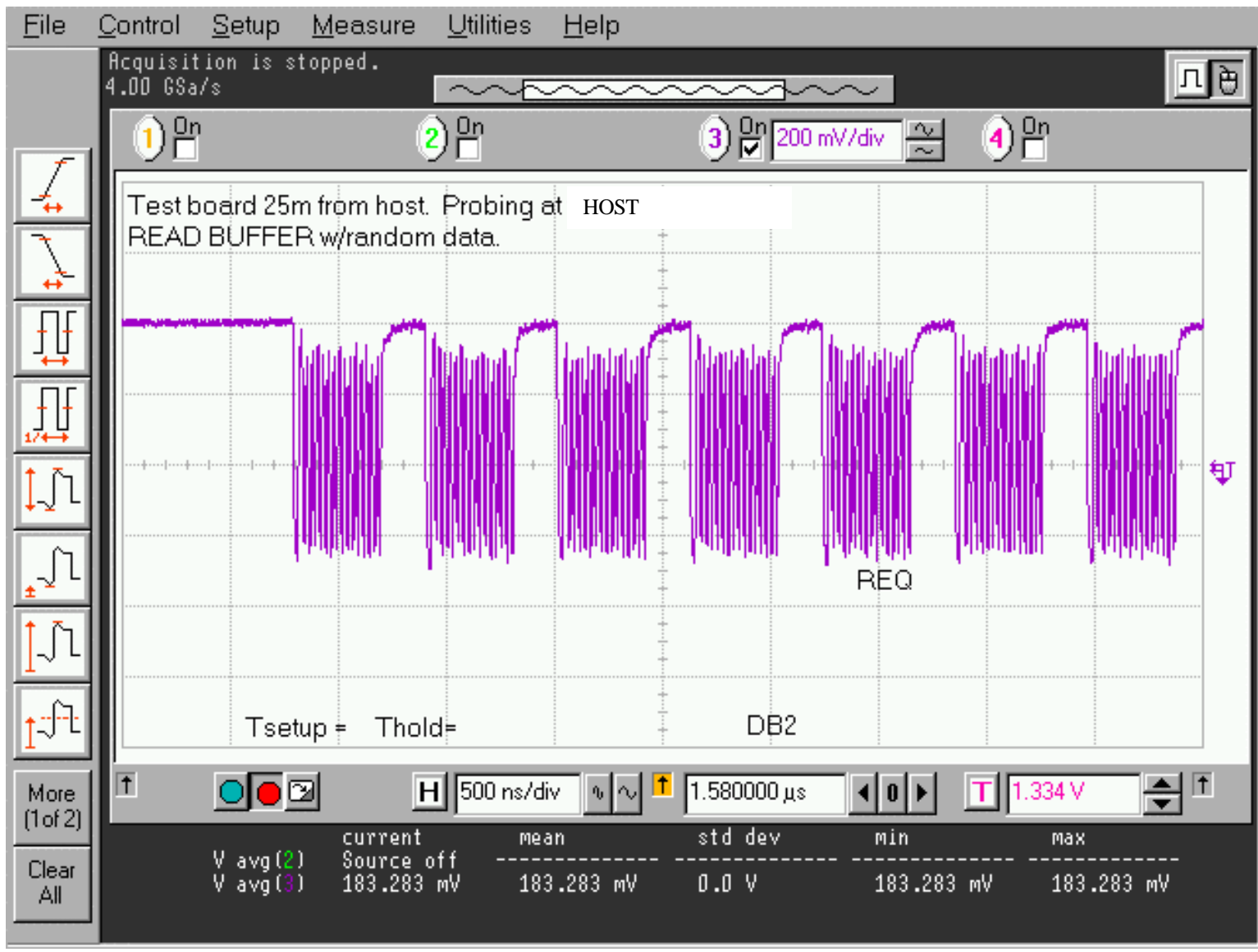
Slide 3: Data envelope at target end of cable. Same as slide 1 but with REQ trace suppressed.



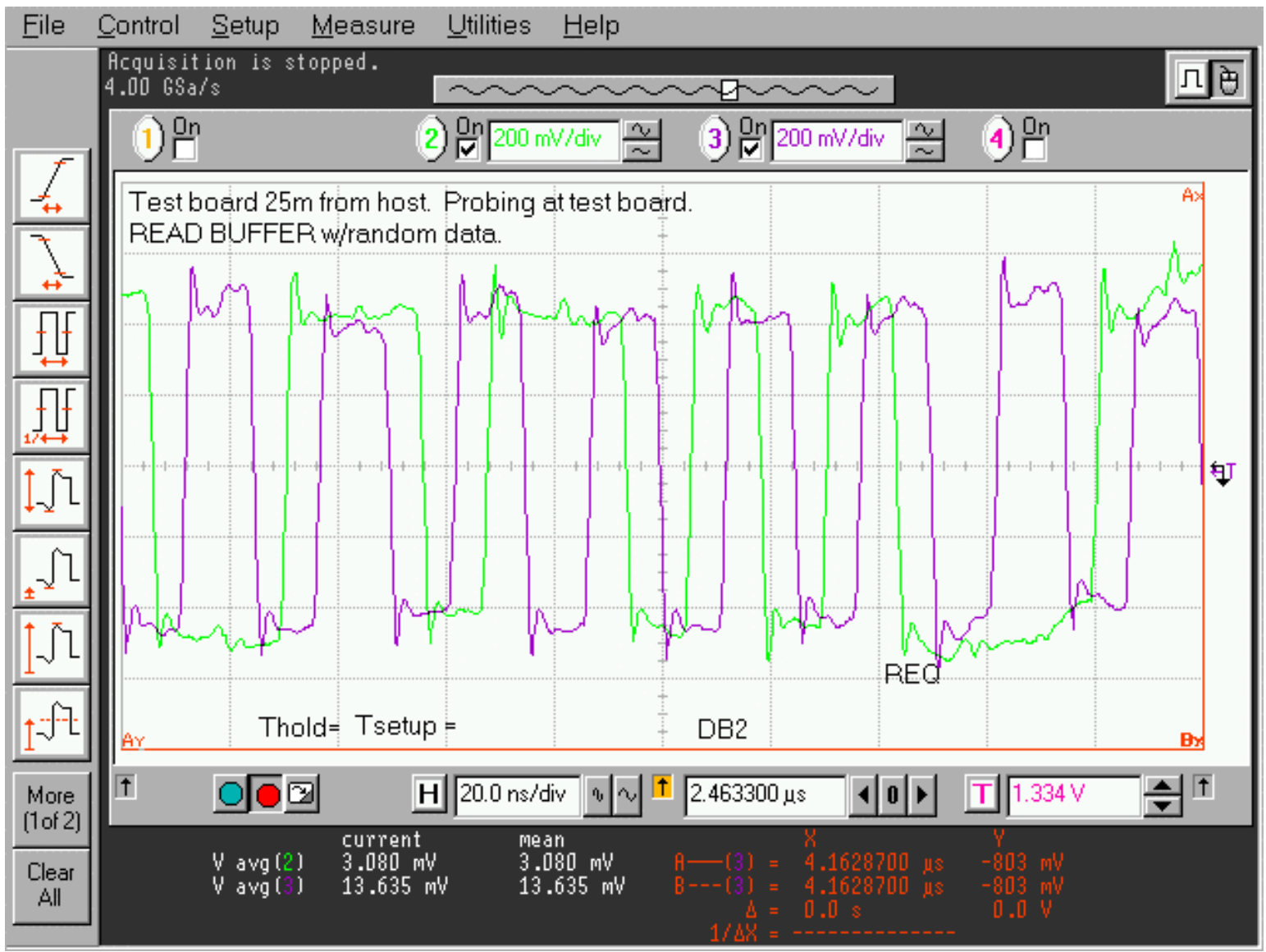
Slide 4: Data envelope at host end of cable. Same as slide 2 but with REQ trace suppressed. Screen heading should say “Probing at host”, not “probing at test board”.



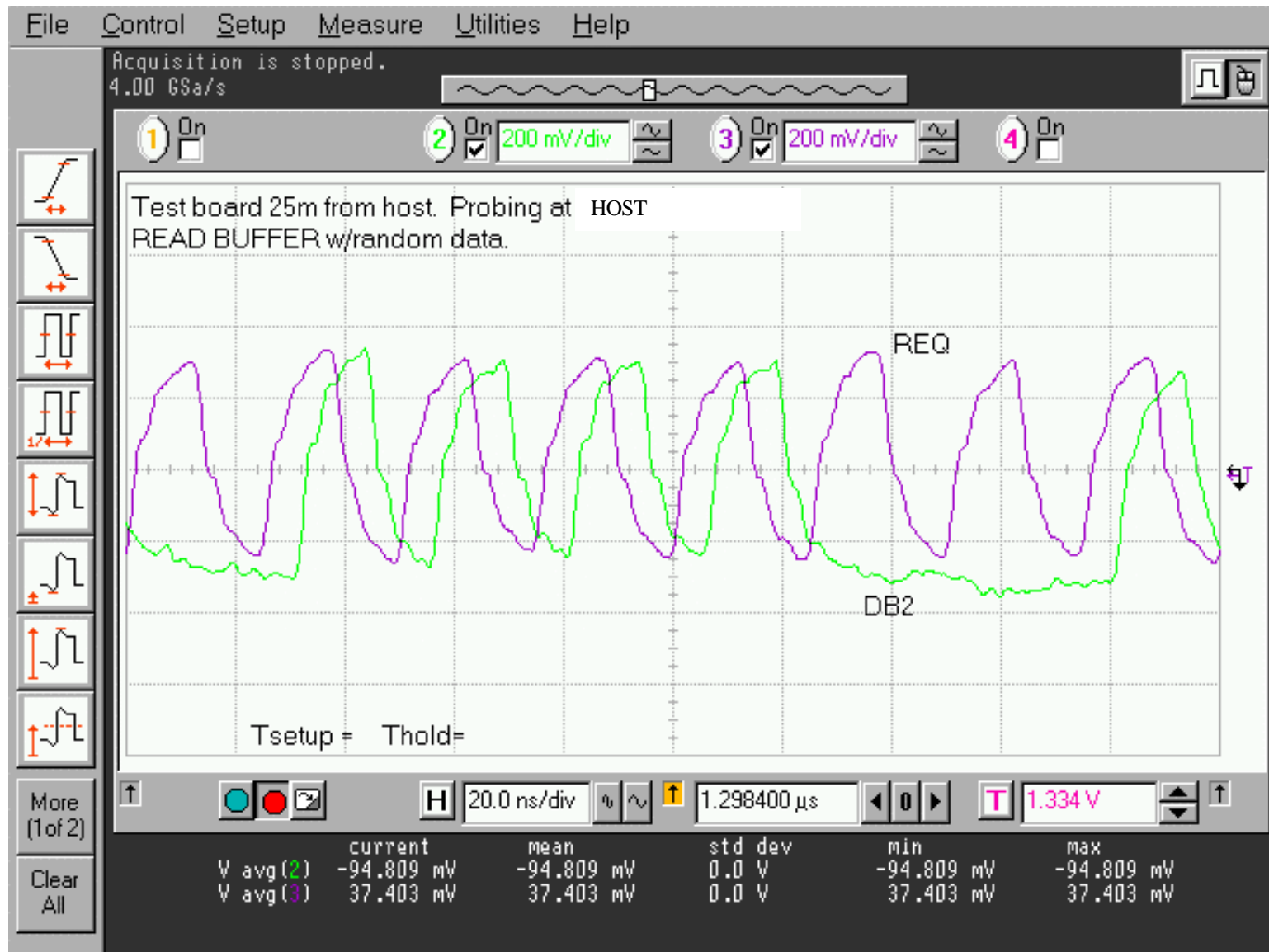
Slide 5: REQ envelope at target end of cable. Same as slide 1 but with DB2 trace suppressed.



Slide 6: REQ envelope at host end of cable. Same as slide 1 but with DB2 trace suppressed. Screen heading should say “Probing at host”, not “probing at test board”.



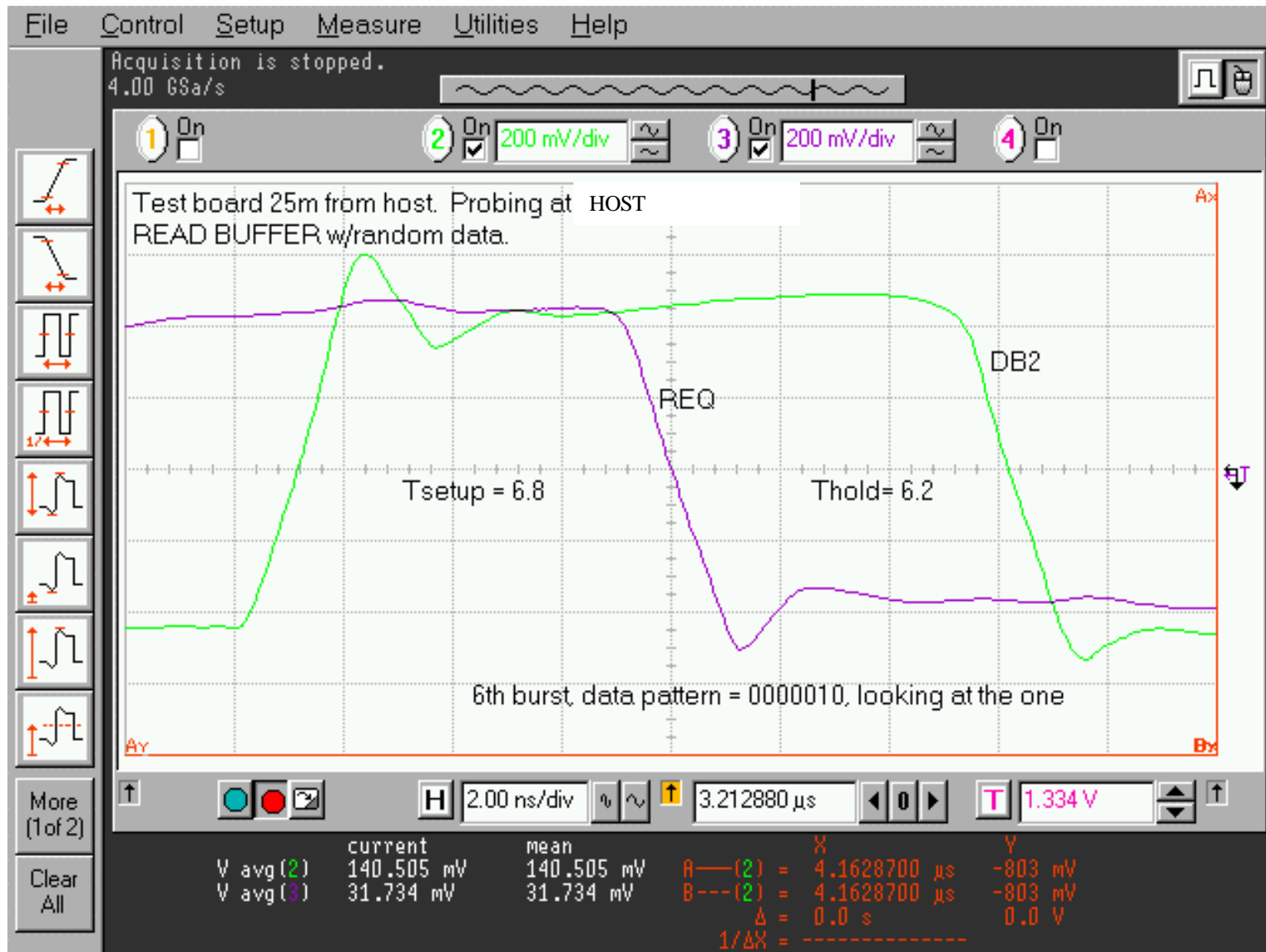
Slide 7: Representative portion of burst, showing REQ vs DB2 at target end of cable.



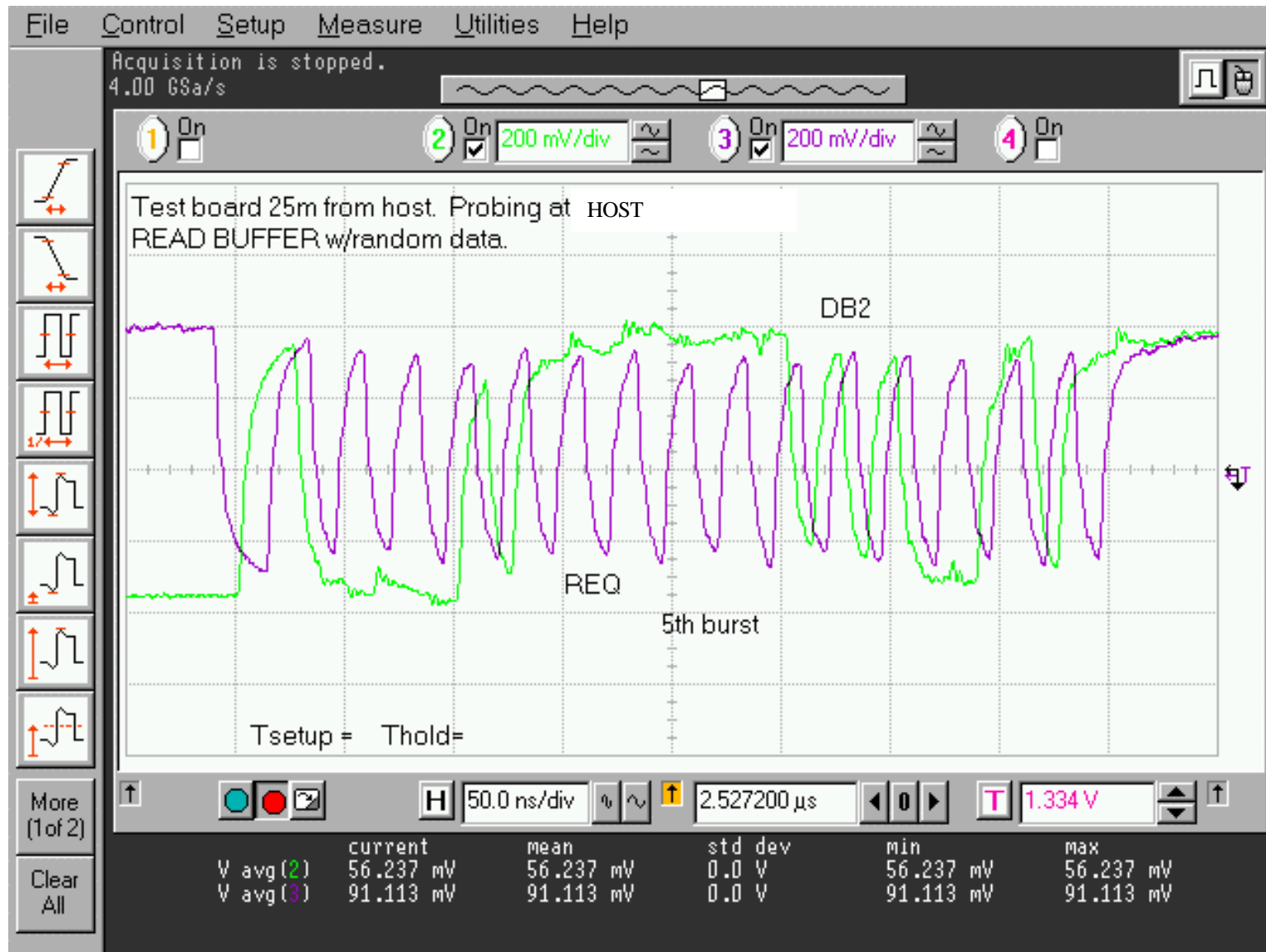
Slide 8: Representative portion of burst, showing REQ vs DB2 at host end of cable. Screen heading should say “Probing at host”, not “probing at test board”.



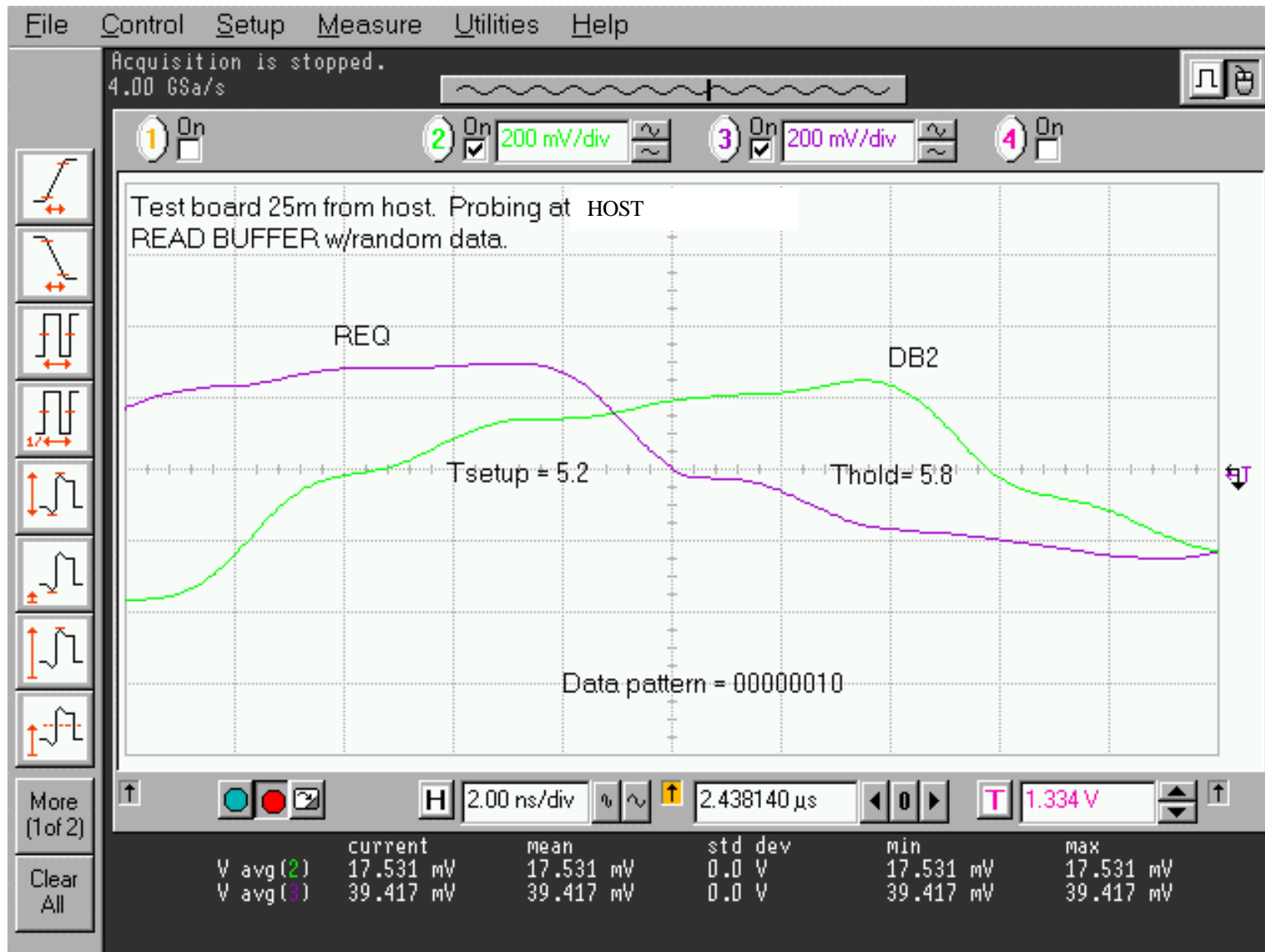
Slide 9: A single one after five zeroes, at target end. Should generate ISI condition at host end.



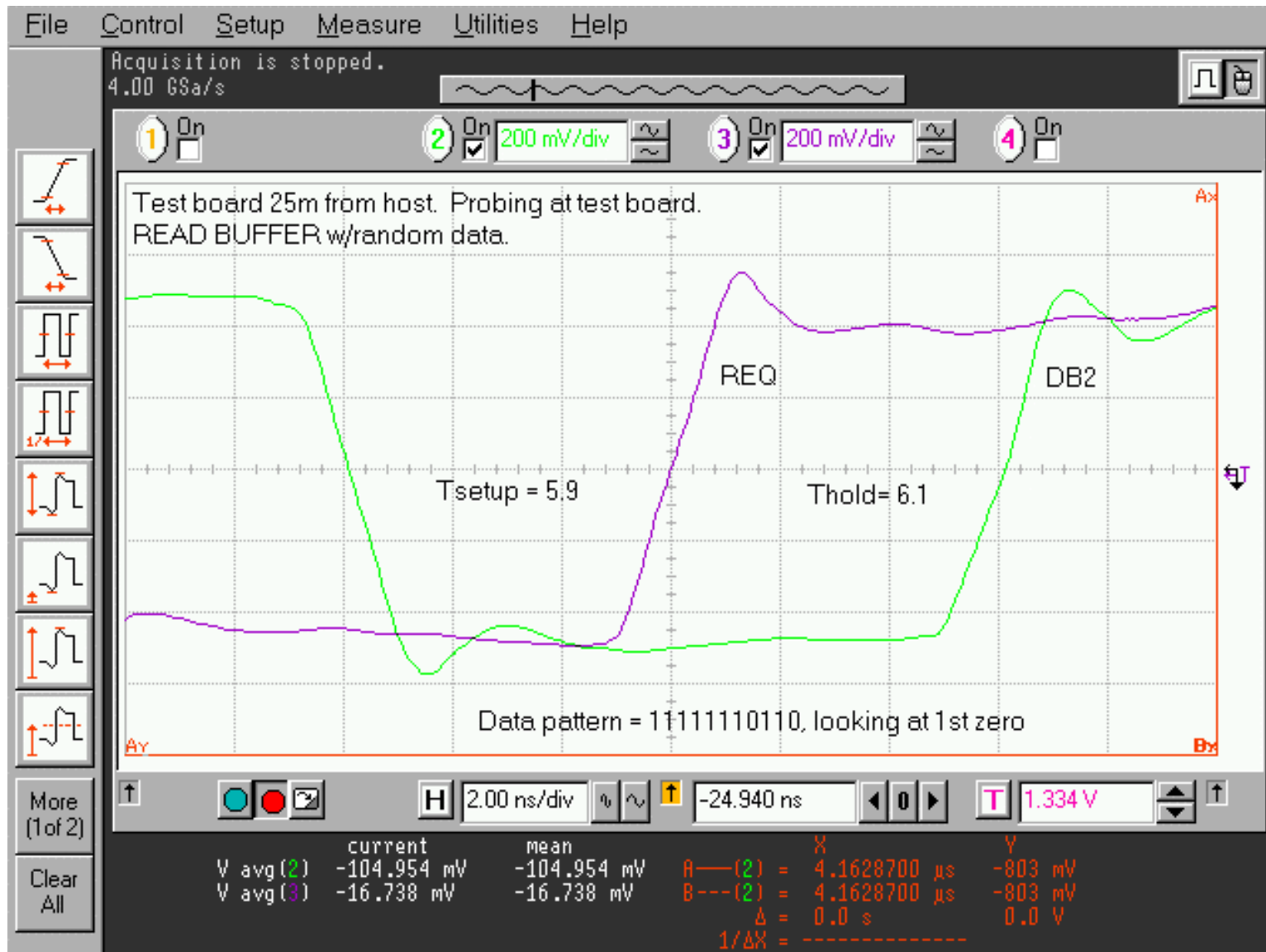
Slide 10: A single one after five zeroes, showing setup and hold times. A detailed view of the sequence in slide 9.



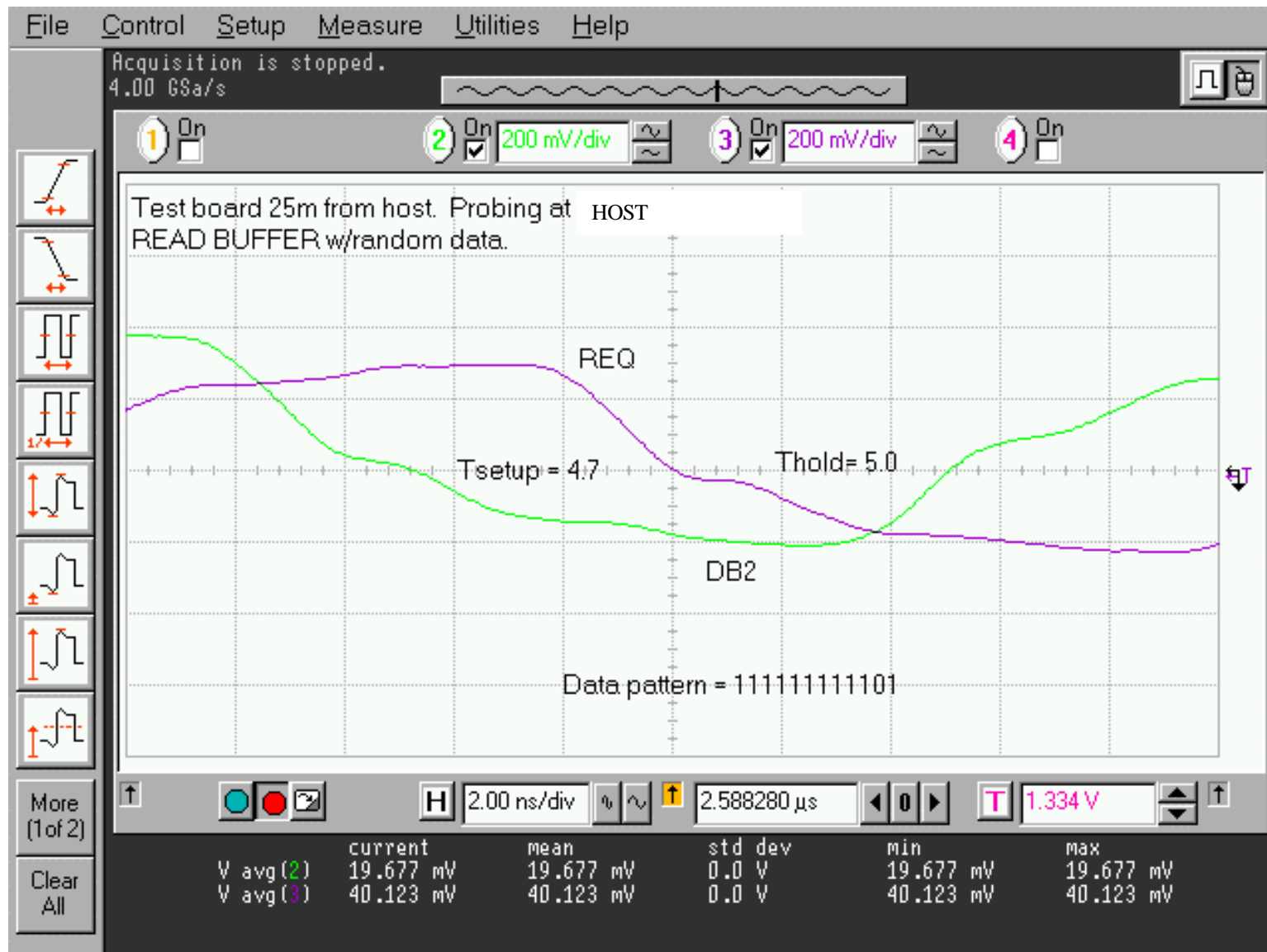
Slide11: An area of interest, including 6 consecutive zeroes and 10 consecutive ones, at host end. Examined more closely on following slides. Screen heading should say “Probing at host”, not “probing at test board”.



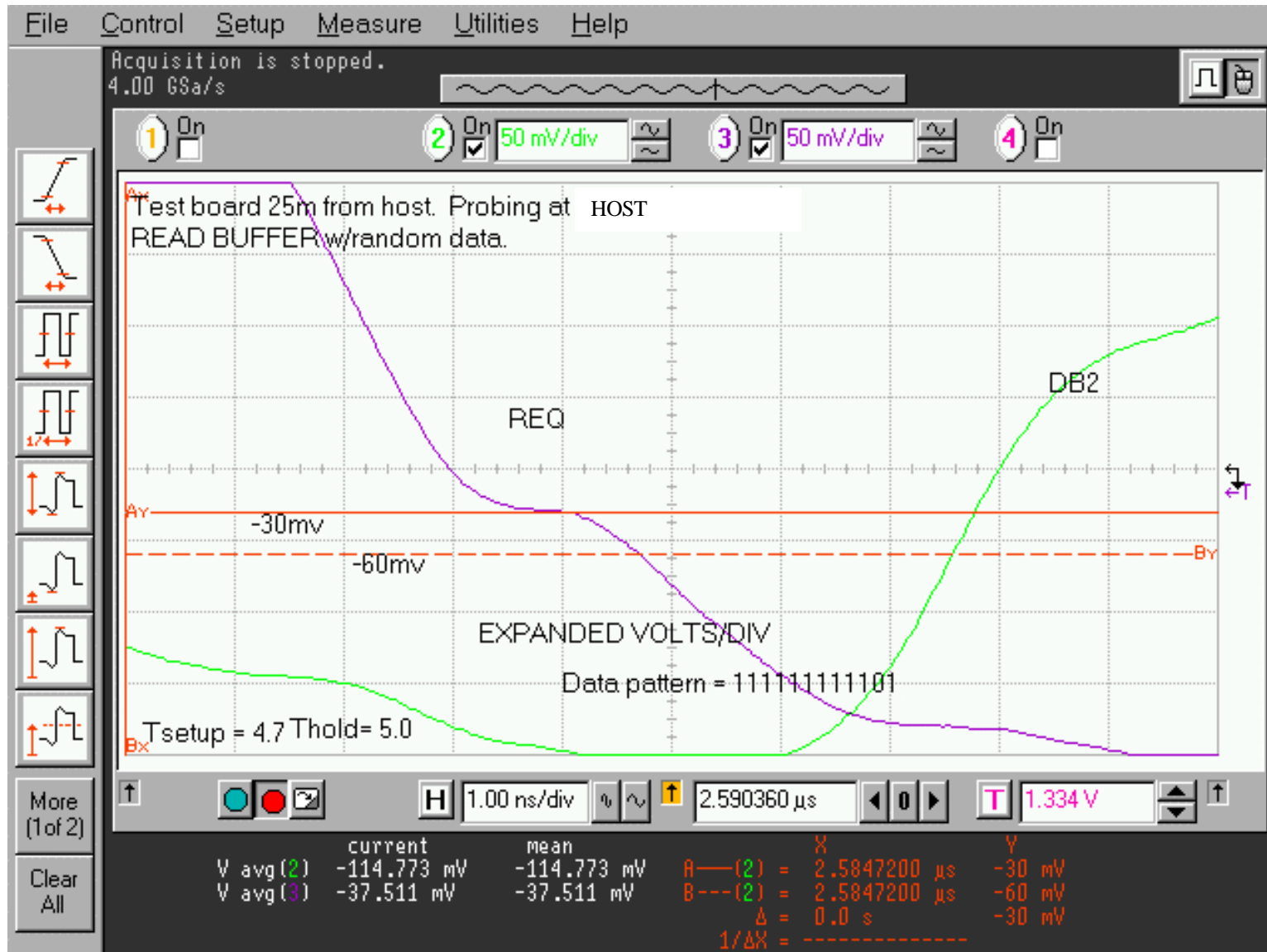
Slide 12: A more detailed view of slide 11. Setup and hold times for a one preceded by 6 zeroes at the host end. Screen heading should say “Probing at host”, not “probing at test board”.



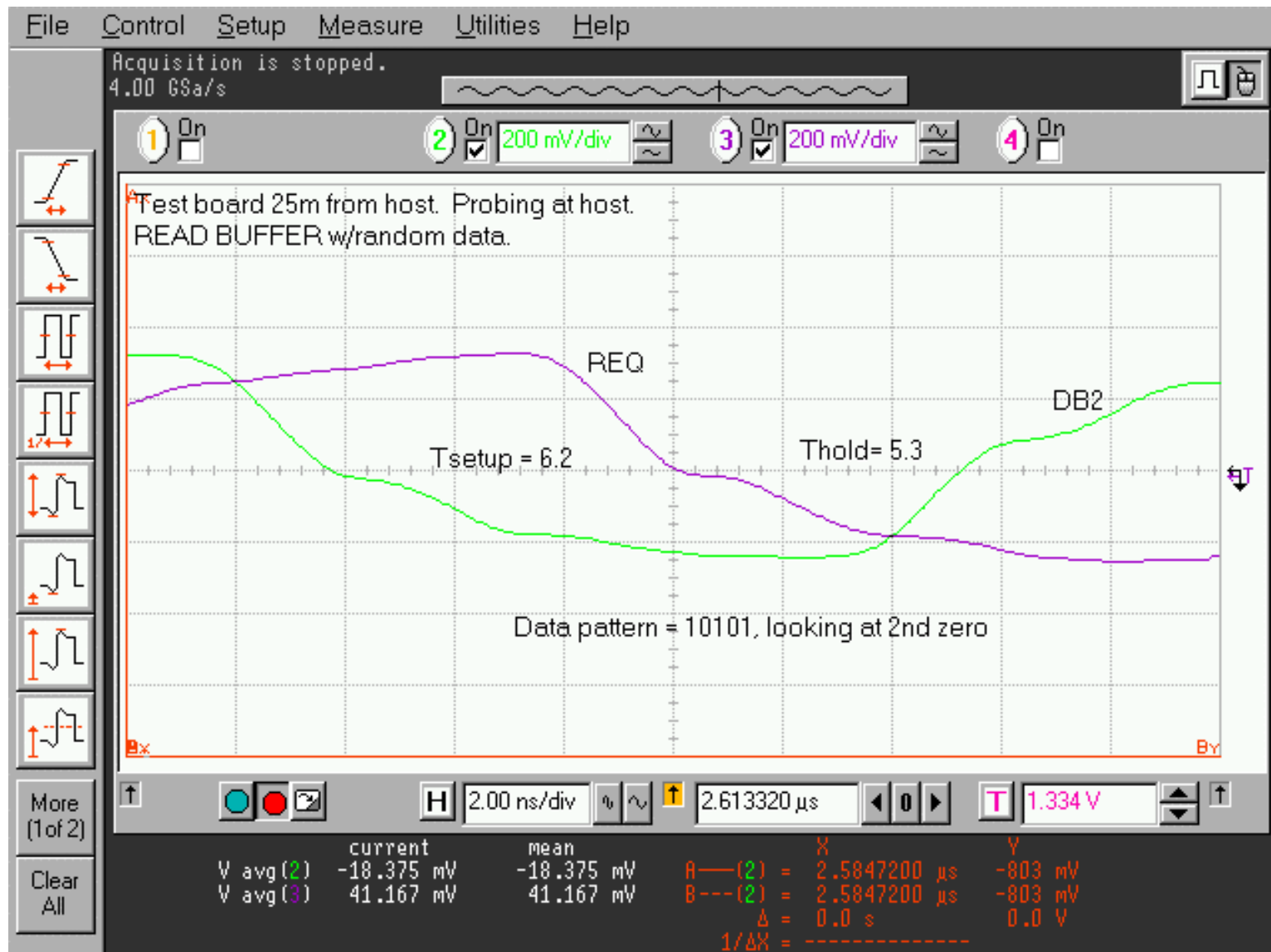
Slide 13: A single zero after seven ones, at the target, showing setup and hold times. Sorry, didn't capture the picture of the whole sequence.



Slide 14: A more detailed view of slide 11. Setup and hold times for a zero preceded by 10 ones at the host end. Screen heading should say “Probing at host”, not “probing at test board”.



Slide 15: A closer look at a portion of slide 14, expanding the shelf at around -30mV on REQ. Screen heading should say “Probing at host”, not “probing at test board”.



Slide 16: For comparison with slide 14, a zero bit with only one preceding one bit. ISI should not be an issue on this pattern.