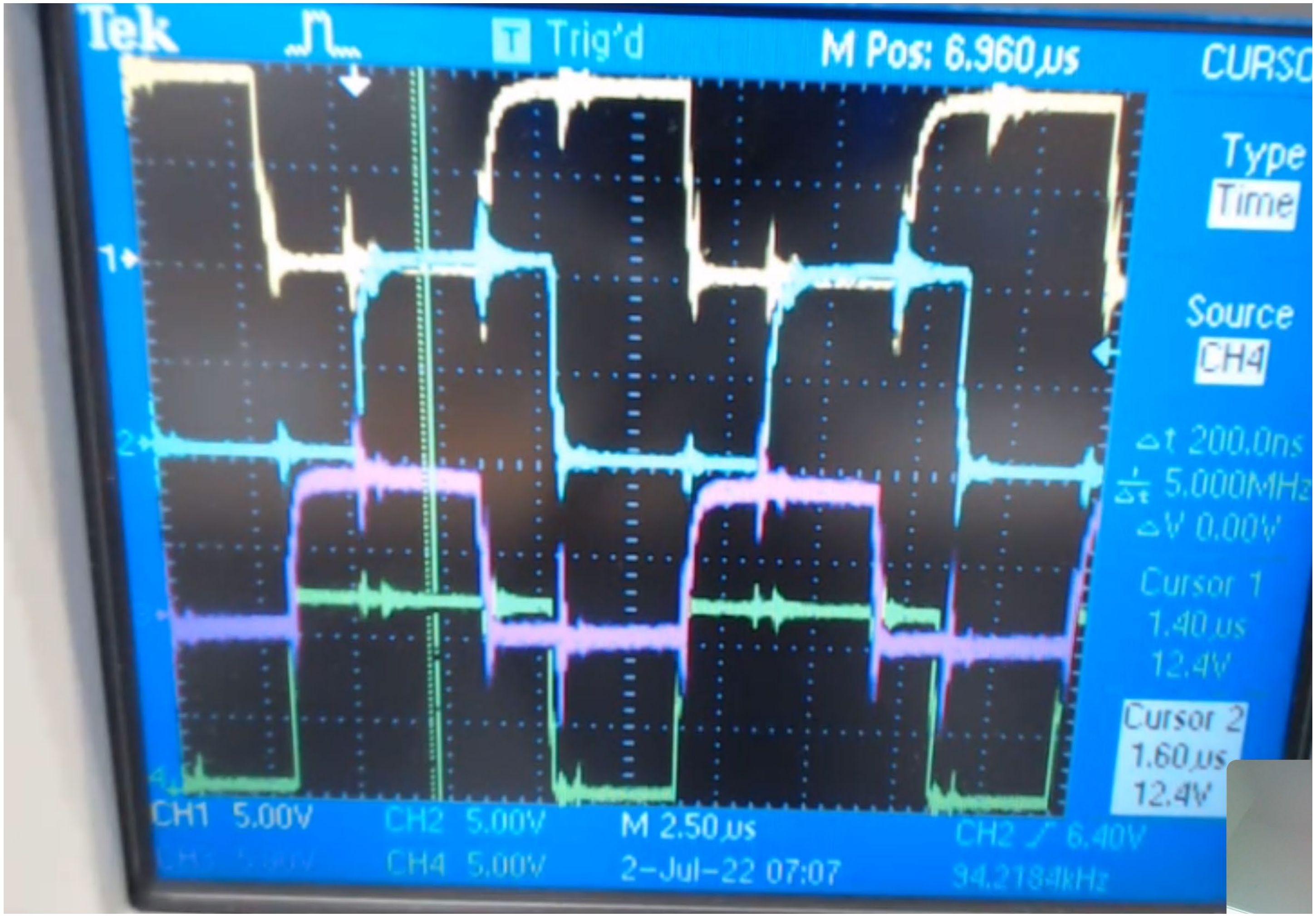
Iout = 7A; Ch1: **Vgs-Q4**, Ch2: **Vgs-Q3**, Ch3: Vgs-Q2, Ch4: Vgs-Q6; R8=64.9k (daughter card);

tAFSET = time difference between the falling edge of Ch3: Vgs-Q2 (QA per SLUSA16D) and the falling edge of Ch.4: Vgs-Q6 (QF per slusa16D).

It looks like Vgs-Q6 (QF) ON-time is the union (Boolean sum) of Vgs-Q2 (QA) and Vgs-Q3 (QD).



Vgs-Q2 (QA) and Vgs-Q3 (QD) are phase shifted more for smaller load currents compared to larger load currents. So, after Q2 turns OFF, for smaller load currents Q3 will turn off after a longer interval while for larger load currents Q3 will turn off after a shorter time interval, as seen for Iload = 25A below. Hence, tAFSET will be load dependent even with a fixed delay approach.

tAFSET delay is measured in the last oscilloscope screenshot in this document for Iout=25A.

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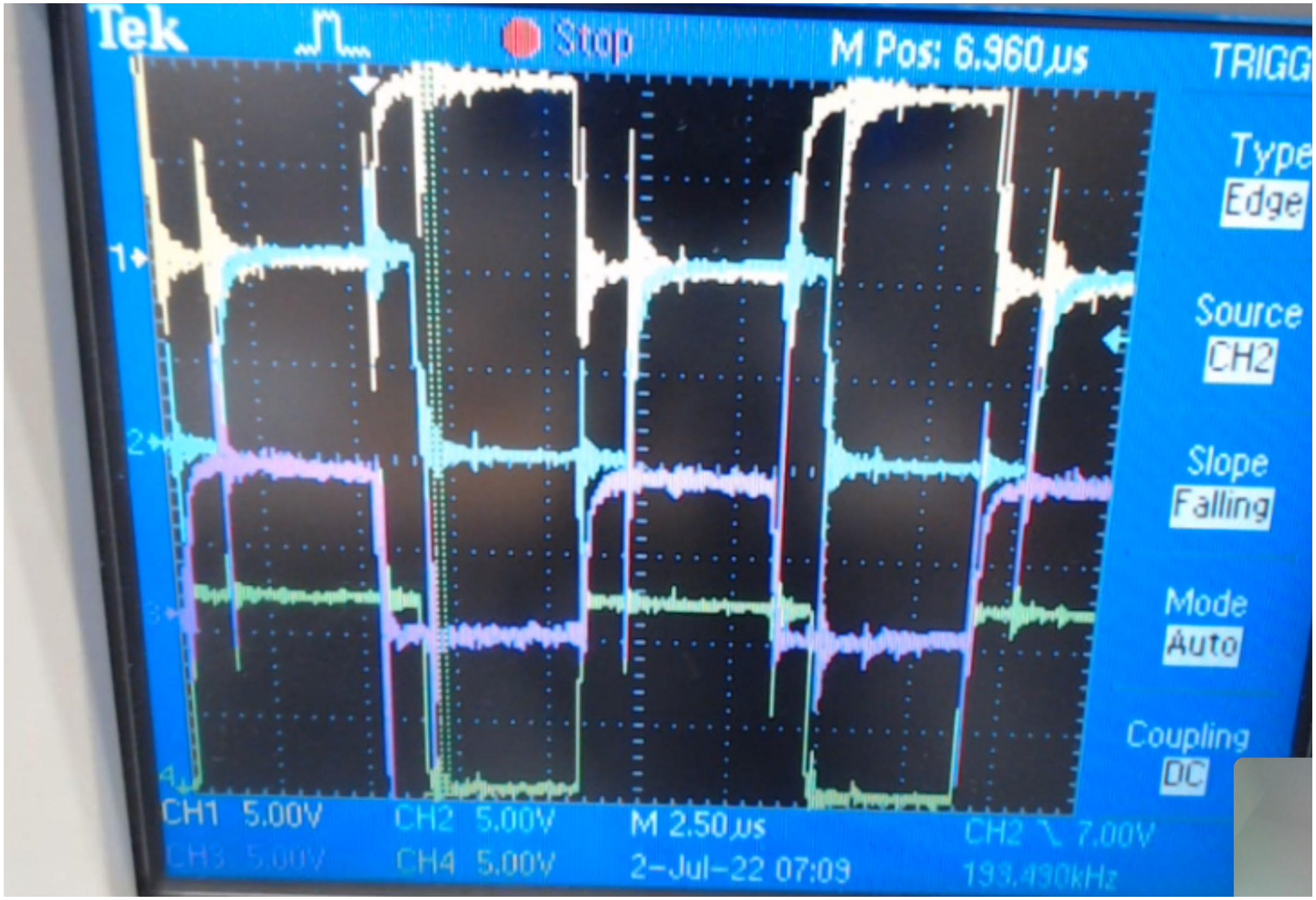
Iout=25A;   R8=64.9k;   Ch1: **Vgs-Q4**, Ch2: **Vgs-Q3**, Ch3: Vgs-Q2, Ch4: Vgs-Q6



It looks like Vgs-Q6 (QF) ON-time is the union (Boolean sum) of Vgs-Q2 (QA) and Vgs-Q3 (QD).

Vgs-Q2 (QA) and Vgs-Q3 (QD) are phase shifted more for smaller load currents compared to larger load currents. Hence, after Q2 turns OFF, for smaller load currents Q3 will turn off after a longer interval while for larger load currents Q3 will turn off after a shorter time interval, as seen for Iload = 25A above. Hence, tAFSET will be load dependent even with a fixed delay approach.

The time interval between Q2 (QA) turn OFF and QF turn OFF is measured next for Iout = 25A.

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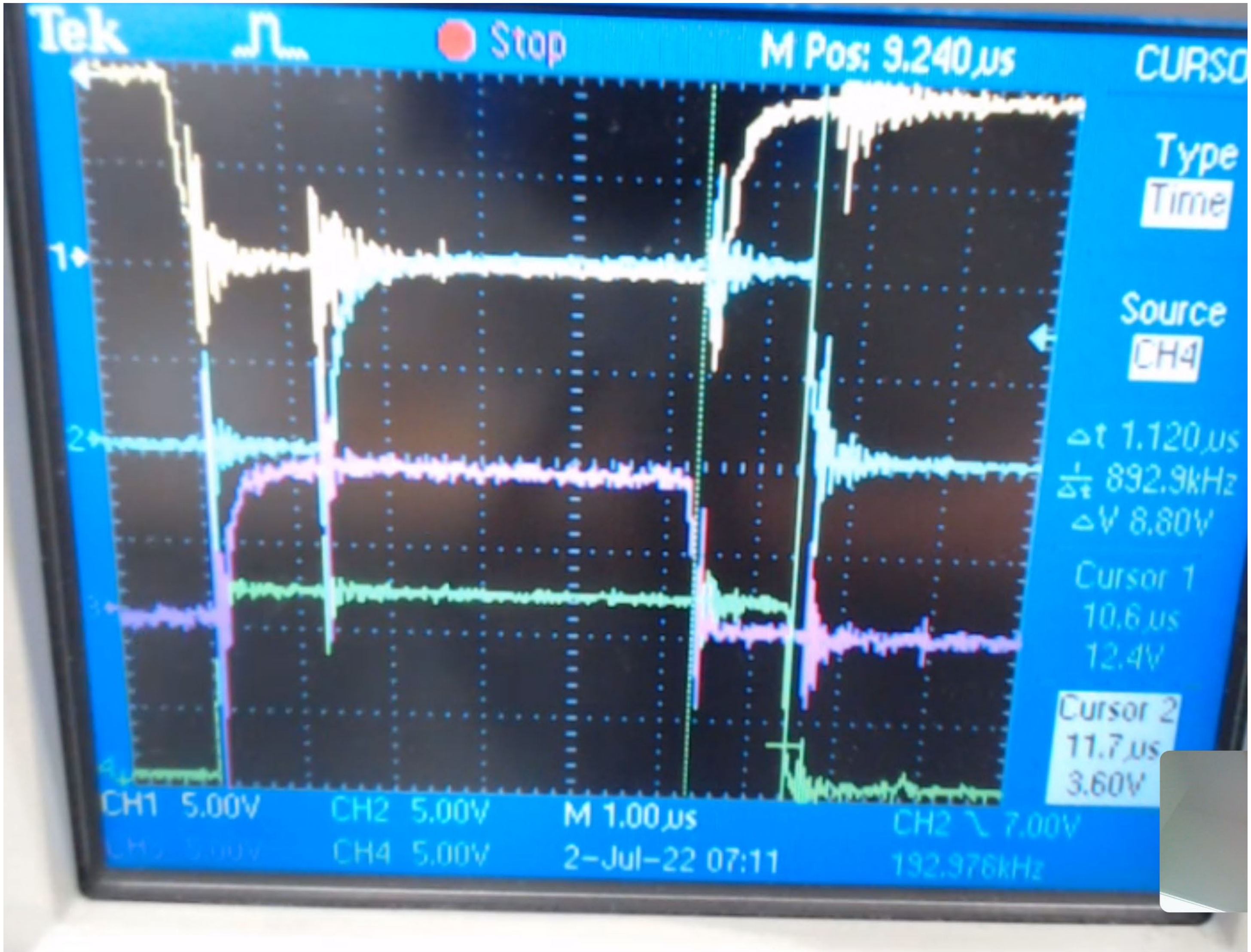
Iout=25A; R8=64.9k; Ch1: **Vgs-Q4**, Ch2: **Vgs-Q3**, Ch3: Vgs-Q2, Ch4: Vgs-Q6; 1.00us/div

tAFSET = 1.12us (see cursor positions)….. (The time interval between Q2 (QA) turn OFF and QF turn OFF)



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