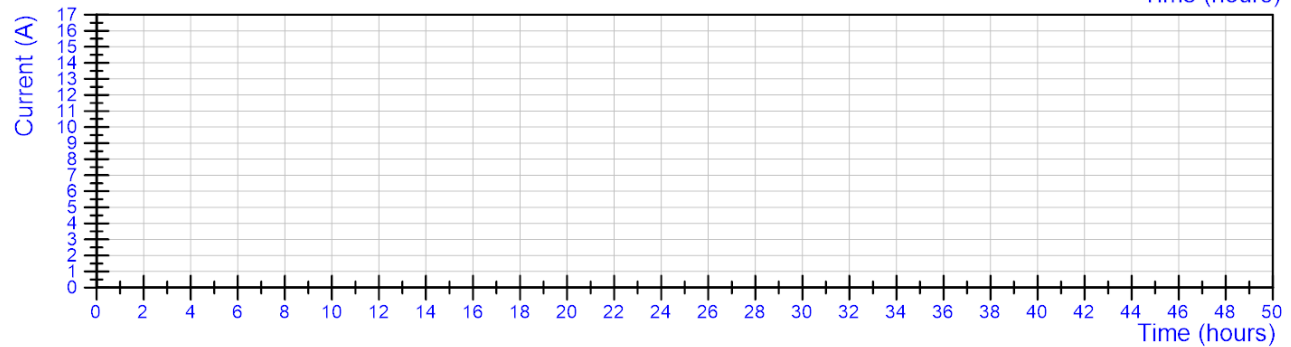
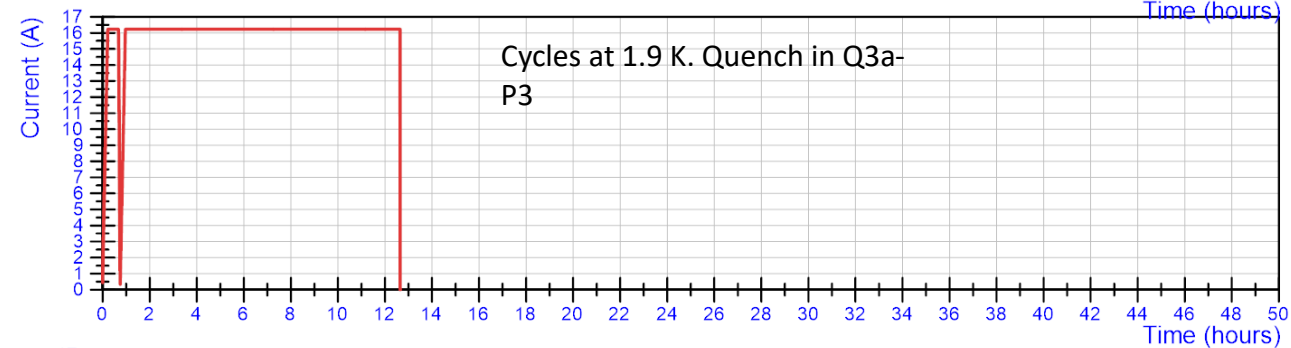
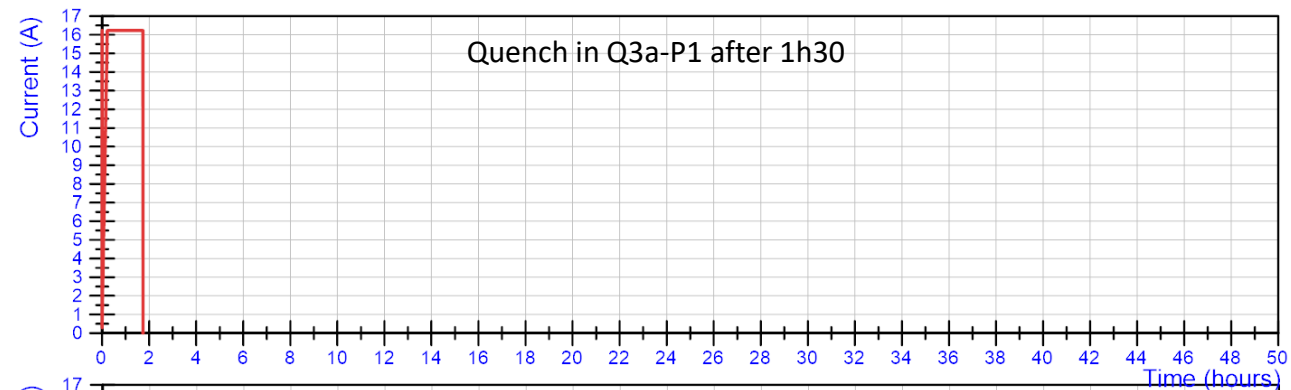
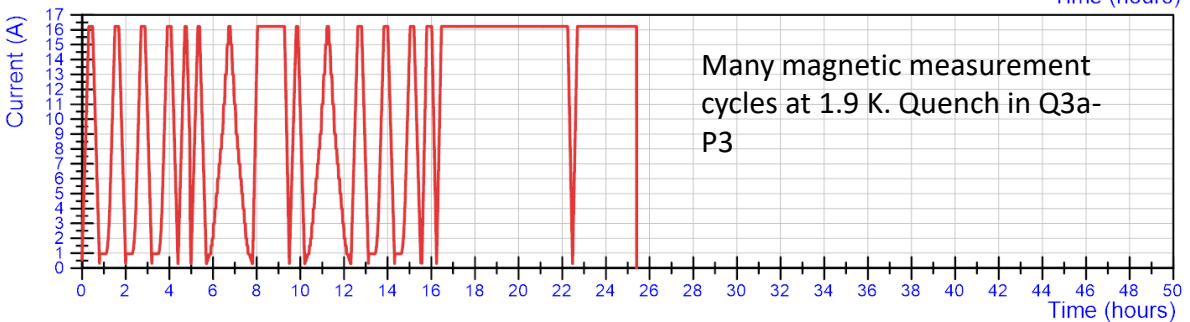
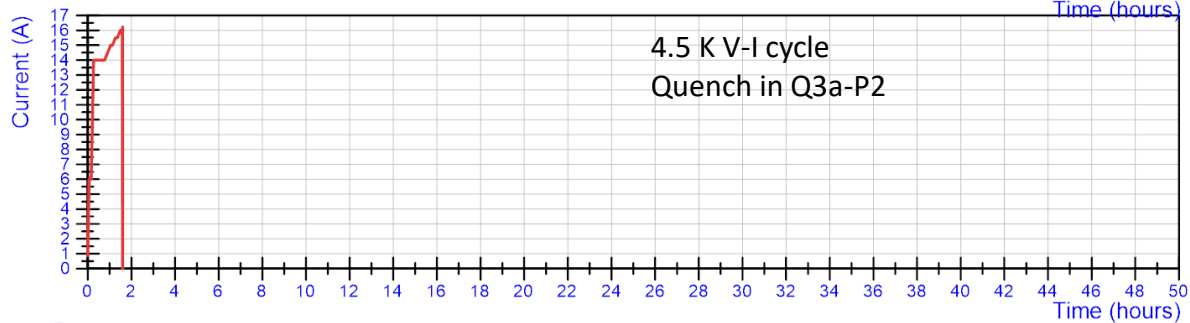
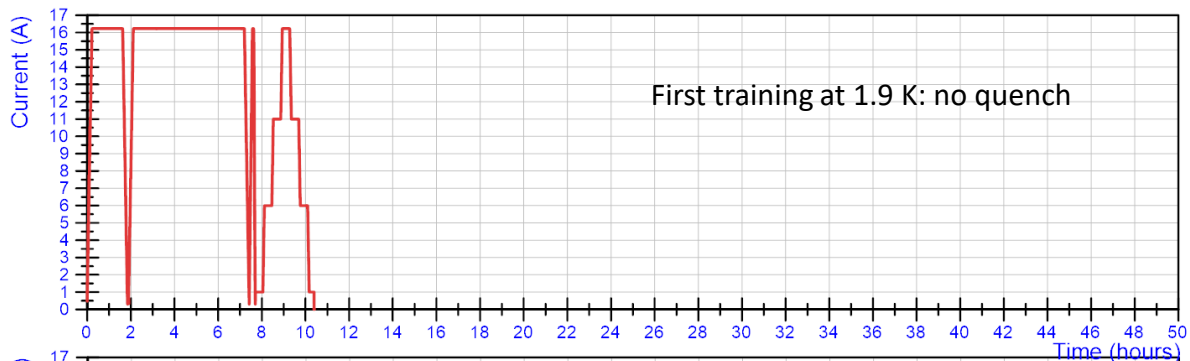


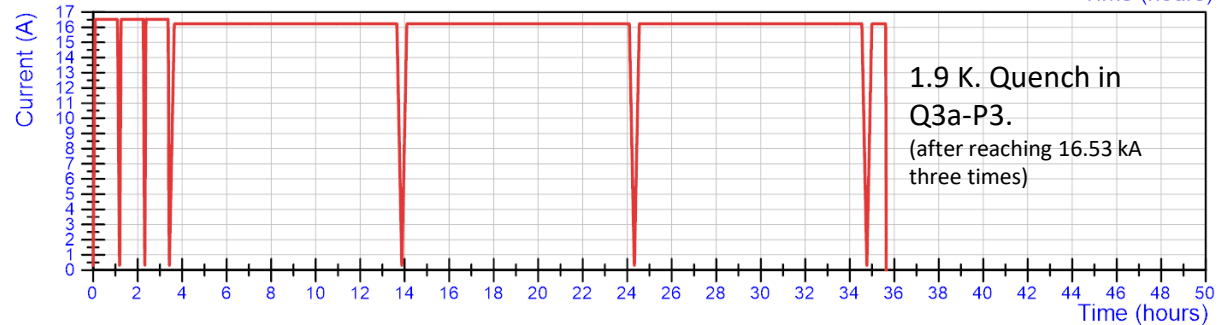
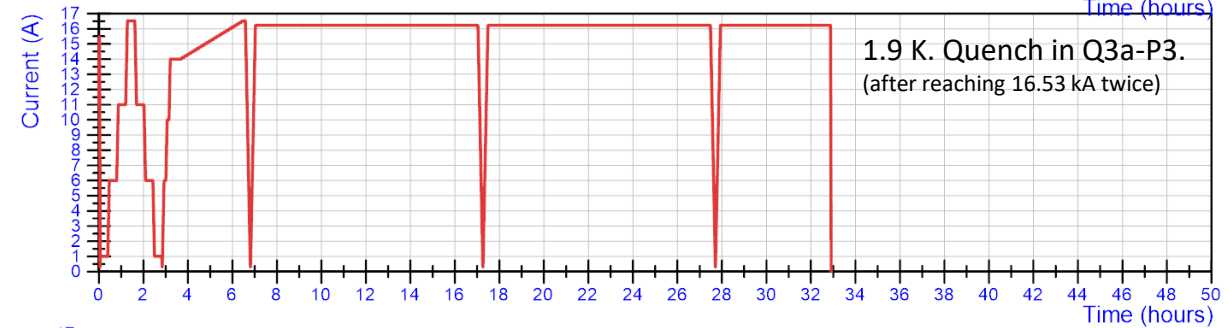
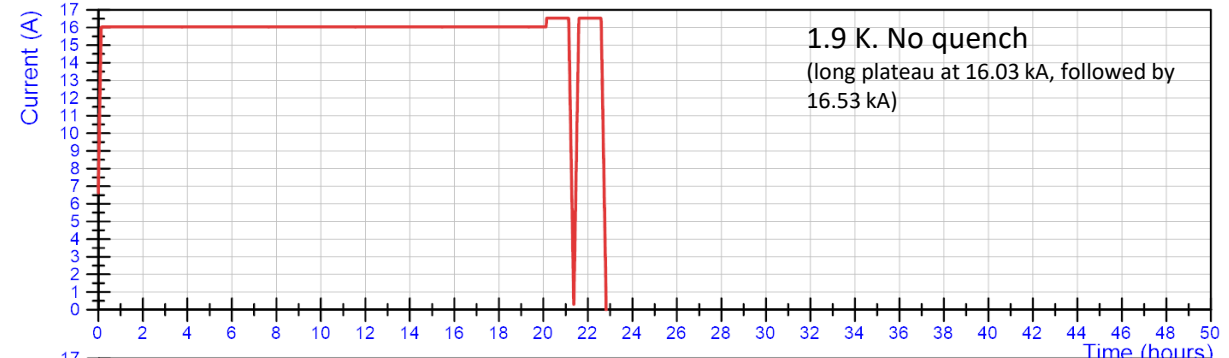
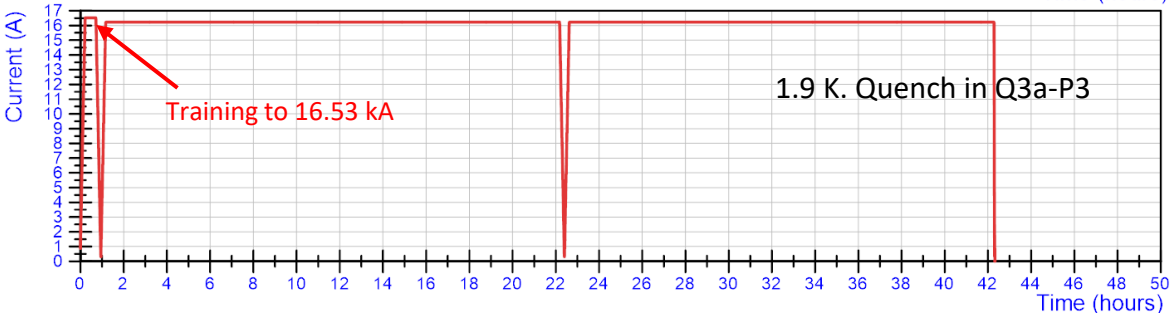
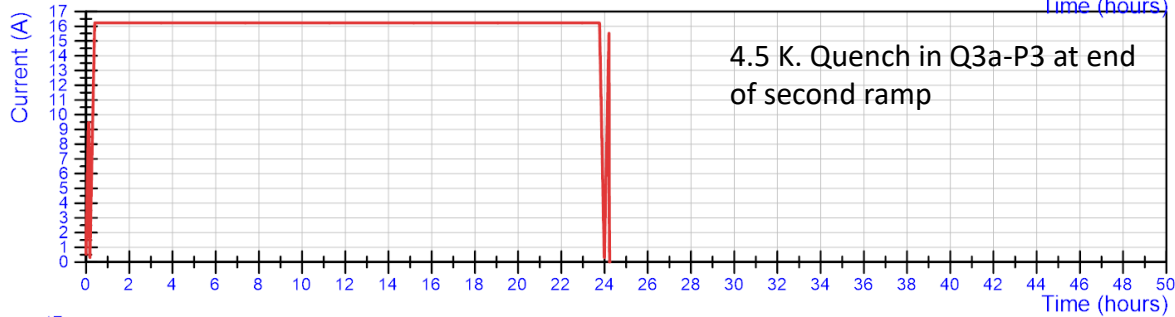
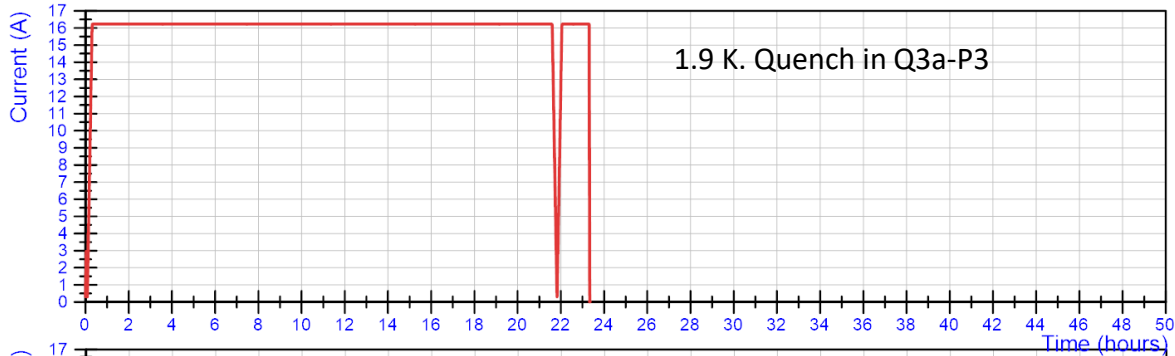
Cool down 1: powering cycles from virgin conditions

'Virgin conditions' definition: All induced currents/magnetization have been cancelled by a (provoked) quench of the coil.



Cool down 2: powering cycles from virgin conditions

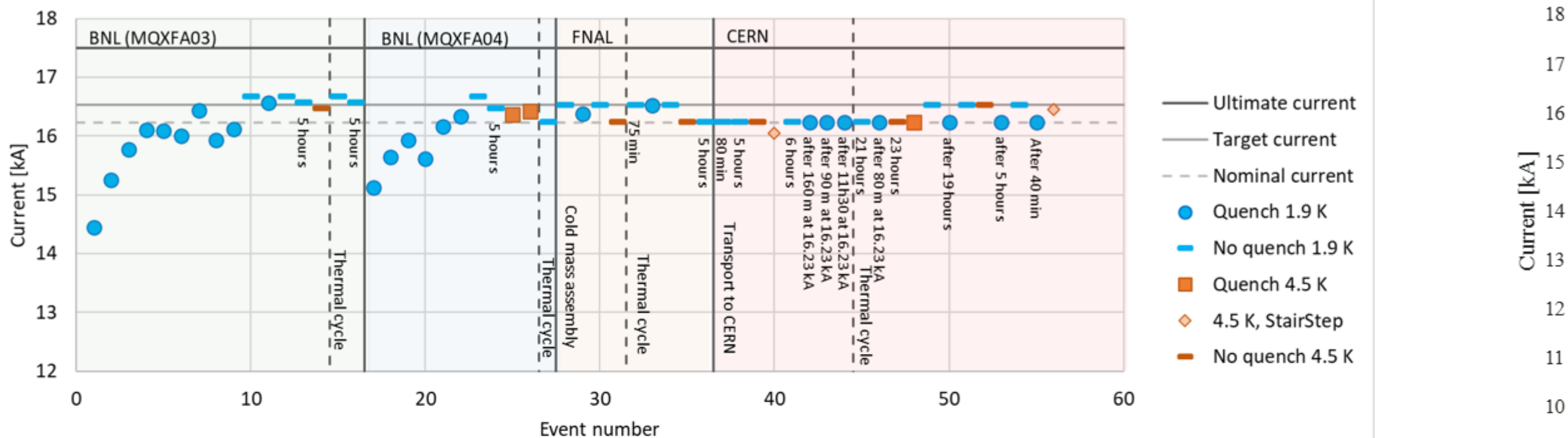
'Virgin conditions' definition: All induced currents/magnetization have been cancelled by a (provoked) quench of the coil.



Consistent results:

All seven quenches in Q3a-P3 at 1.9 K occurred all after minimum 12 hours at nominal current and maximum 42 hours. It always occurred in the second or later ramp (but this may be coincidence, since we did not often start with a very long ramp).

LMQXFA01 (and its magnets) quench history up to 20 A/s



Number	Temperature (K)	RR (A/s)	Quench current (kA)	Moment	Quenched coil	Quench Antenna	Time to reach 100 mV (ms)
CD1-1	4.5	1	16.05	During ramp	Q3a-P2	-	4.6
CD1-2	1.9	20	16.23	After 160 min	Q3a-P3	-	1.5
CD1-3	1.9	20	16.23	After 90 min	Q3a-P1	-	3.5
CD1-4	1.9	20	16.23	After 11h30	Q3a-P3	7 → 6	1.5
CD2-1	1.9	20	16.23	After 80 min	Q3a-P3	7 → 6	1.6
CD2-2	4.5	20	16.23	During ramp	Q3a-P3	6	4.0
CD2-3	1.9	20	16.23	After 19 hours	Q3a-P3	7 → 6	1.6
CD2-4	1.9	20	16.23	After 5 hours	Q3a-P3	7 → 6	1.5

In total 12 quenches

- Q3a-P2 one quench
- Q3a-P1 one quench
- Q3b-P2 two quenches
- Q3a-P3 – 6 quenches with different characteristics
- Q3a-P3 – 6 quenches at 4.5 K, all in the same coil