

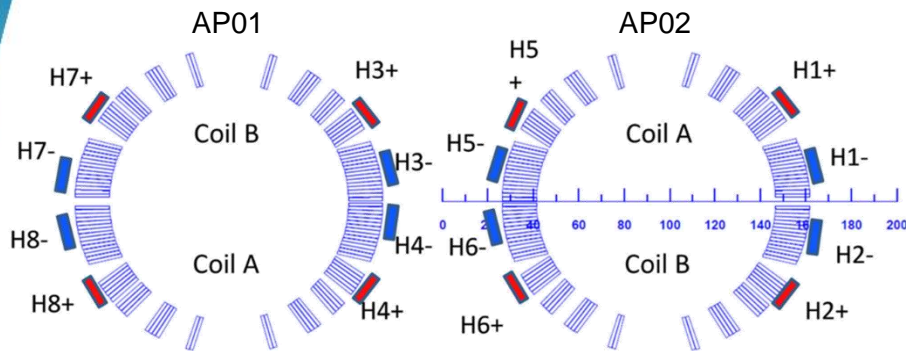


MBRD – Status of the quench protection scheme effectiveness

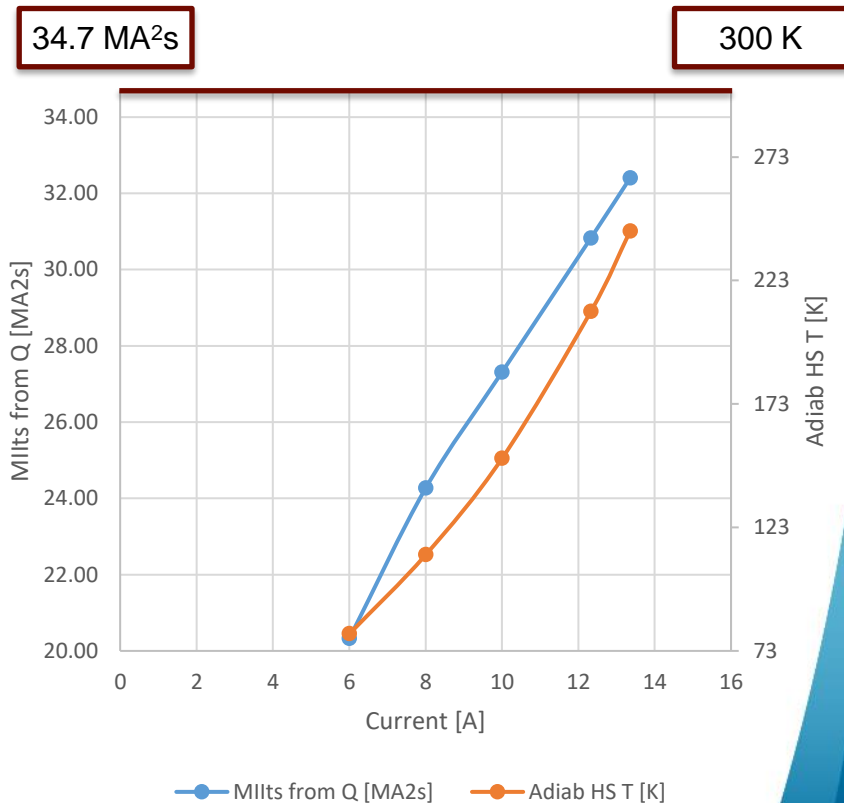
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Quench protection baseline performance



Current [A]	N of QH firing	MilIts from Q [MA ² s]	Adiab HS T [K]	V peak to ground [V]
6000	8	20.3	80	9
8000	8	24.3	112	15
10000	8	27.3	151	33
12330	8	30.8	211	54
13357	8	32.4	243	72

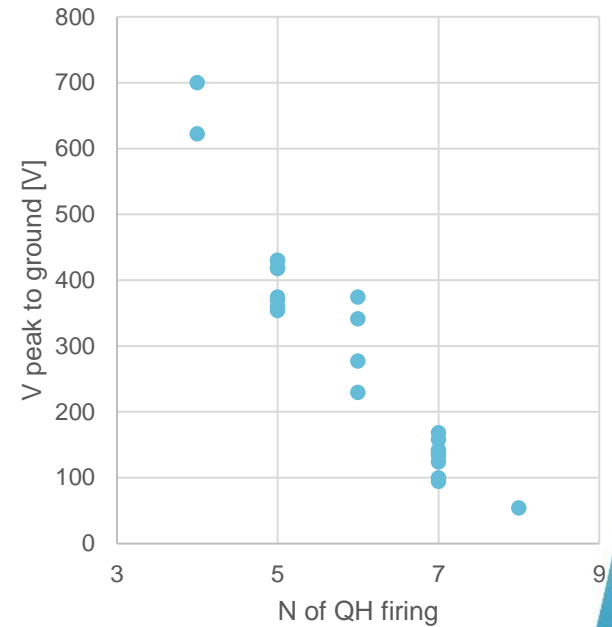
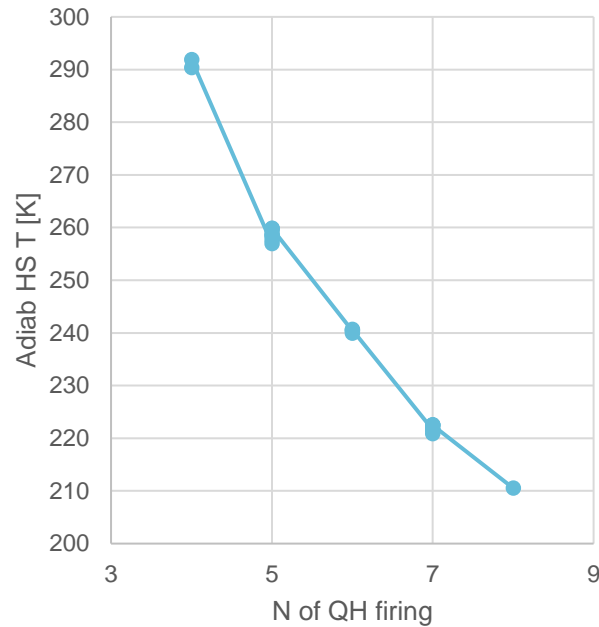
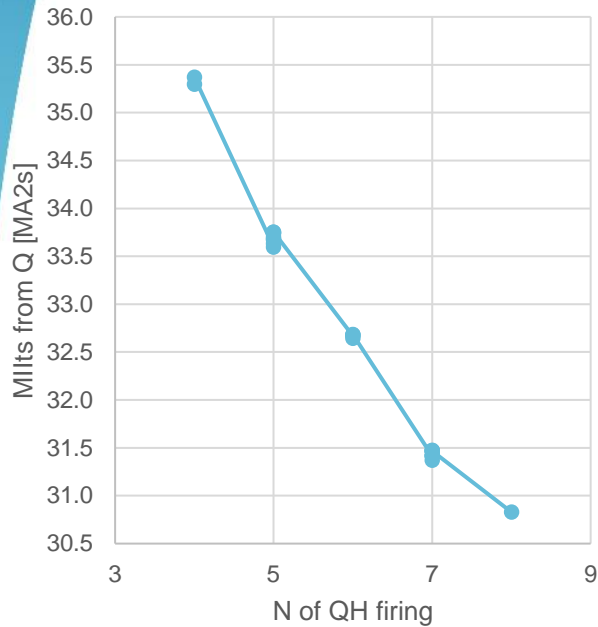


Complete failure analysis at nominal current

	Case	N of QH firing	MIIts from Q [MA ² s]	Adiab HS T [K]	V peak to ground [V]	
STD	1	8	30.8	211	54	
	2	7	31.5	222	140	
	3	7	31.4	222	134	
	4	7	31.5	223	168	
	1 BROKEN QH	5	7	31.4	222	158
		6	7	31.5	222	142
		7	7	31.4	221	124
		8	7	31.5	222	100
		9	7	31.4	222	94
2 BROKEN QH	10	6	32.7	241	277	
	11	6	32.7	241	374	
	12	6	32.6	240	341	
	13	6	32.7	240	229	
	3 BROKEN QH	14	5	33.8	260	430
15		5	33.7	258	418	
16		5	33.7	260	429	
17		5	33.7	259	419	
18		5	33.7	259	369	
19		5	33.6	258	359	
20		5	33.7	260	374	
21		5	33.6	257	354	
4 BROKEN QH	22	4	35.4	292	700	
	23	4	35.3	290	622	

Complete failure analysis at nominal current

- In graphs:



Sensitivity analysis of QH insulation thickness

I [A]	th ins [μm]	case	MIITS from Q [MA ² /s]	Adiab HS T [K]	Δ MIITS [MA ² /s]	Δ Adiab HS T [K]
12330	100	std	30.8	211	0.68	10
12330	125	std	31.5	221		
13557	100	std	32.4	243	0.76	14
13557	125	std	33.2	257		
12330	100	fail 3	32.7	240	0.68	12
12330	125	fail 3	33.4	252		



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Sensitivity analysis of QH insulation thickness

