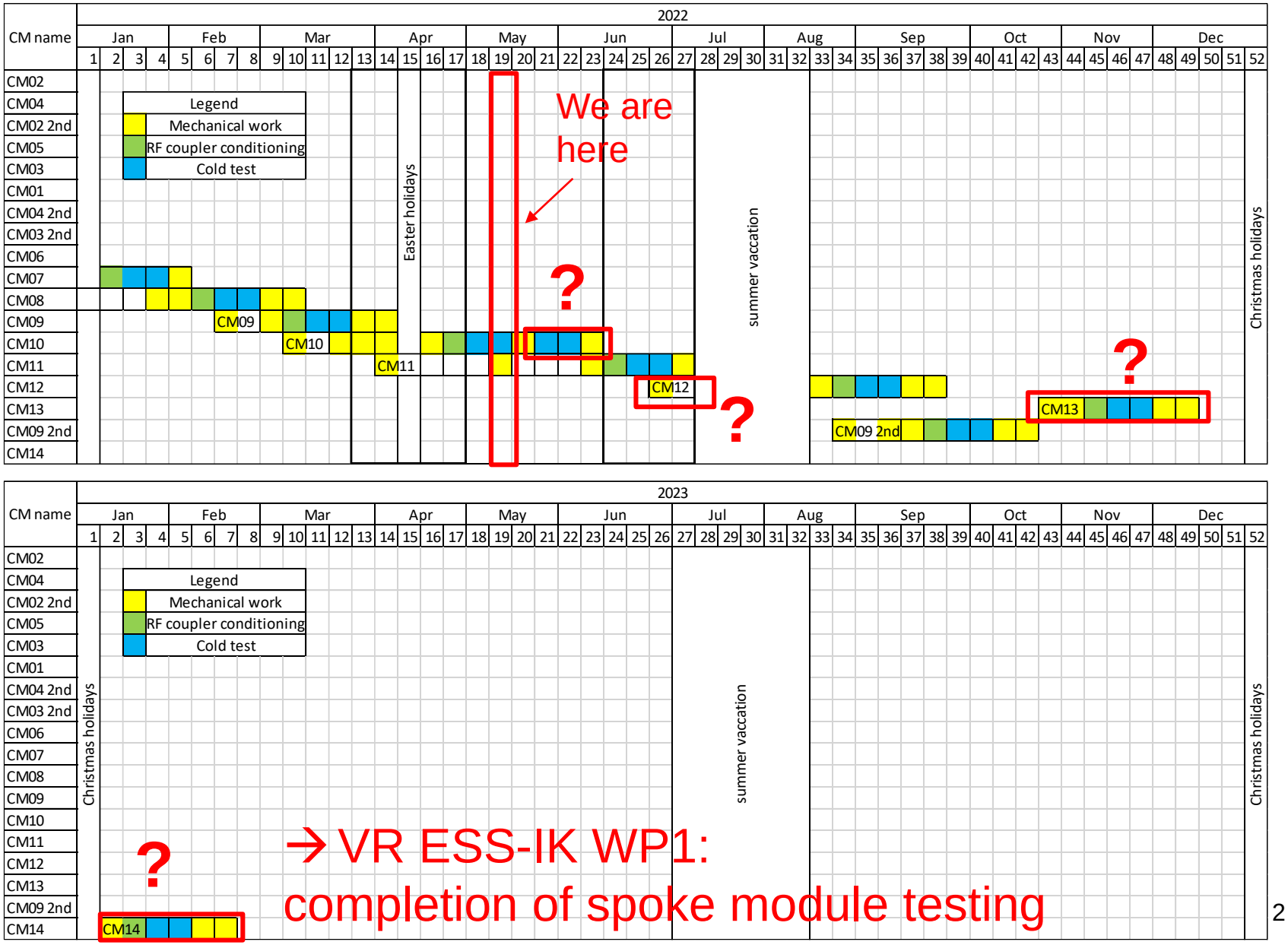
UPPSALA
UNIVERSITET

ESS weekly meeting (2022 W19)

A. Miyazaki, et al

Planning updated (preliminary)



→ VR ESS-IK WP1:
completion of spoke module testing

W18 & W19 progress / W20 plan

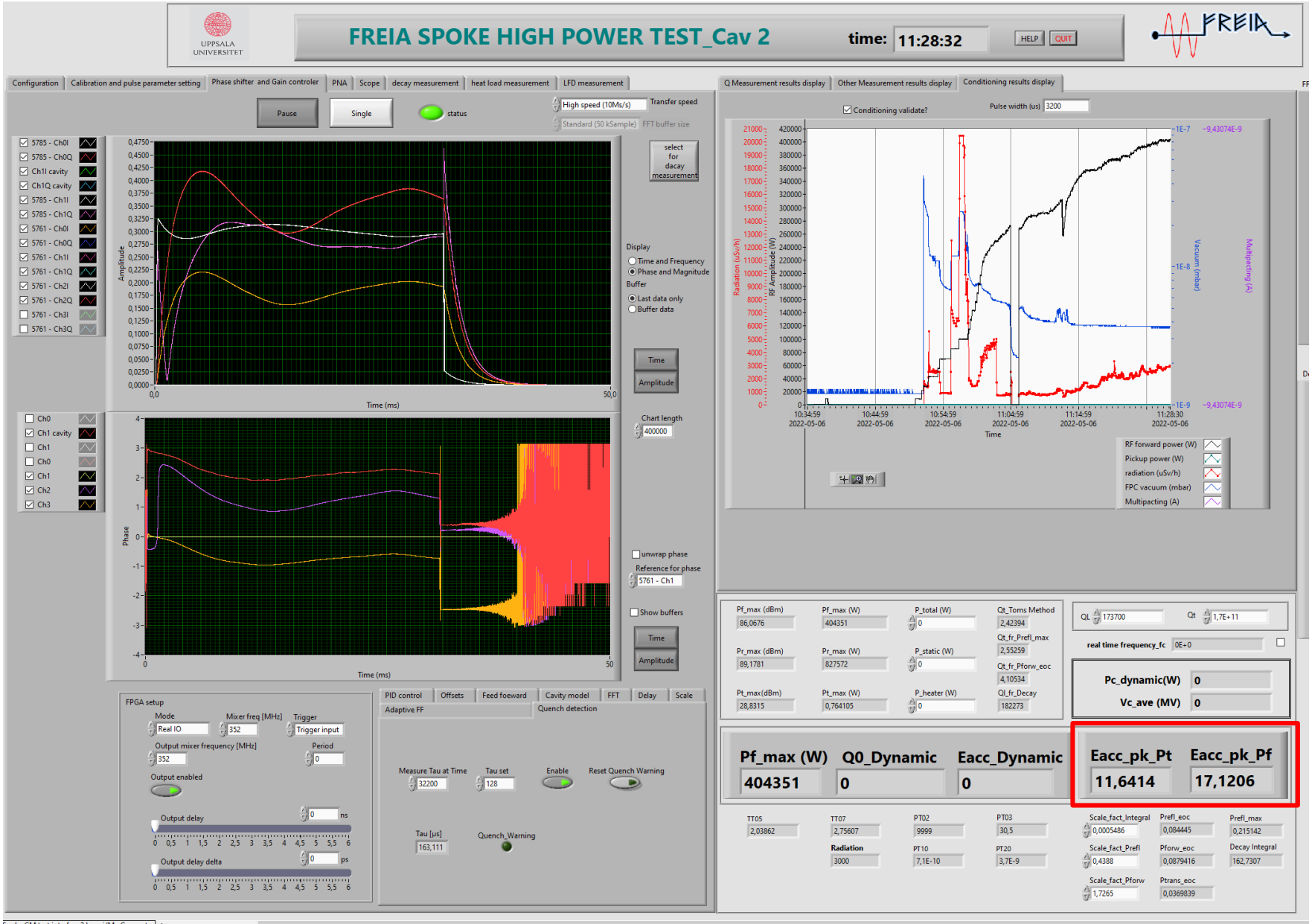
week		W18											
date		MON		TUE		WED		THU		FRI		SAT	SUN
		02-maj		03-maj		04-maj		05-maj		06-maj		07-maj	08-maj
		m	a	m	a	m	a	m	a	m	a		
present CM	**CM10**	2K pumping	RF calibration	tuner test		tuner test contiuned / CTS2 disengage		RF interlock setup	CAVOUT MP conditioning	CAVIN MP conditioning			
next CM	**CM11**	leak test								doorknob mounted			
next next CM	**CM12**	preparation at Orsay											

week		W19											
date		MON		TUE		WED		THU		FRI		SAT	SUN
		09-maj		10-maj		11-maj		12-maj		13-maj		14-maj	15-maj
		m	a	m	a	m	a	m	a	m	a		
present CM	**CM10**	heat load measurement / FREIA LLRF tests						**We are here**		start warming up		break insulation vacuum	warming up
next CM	**CM11**	waiting in the docking area											
next next CM	**CM12**	preparation at Orsay											

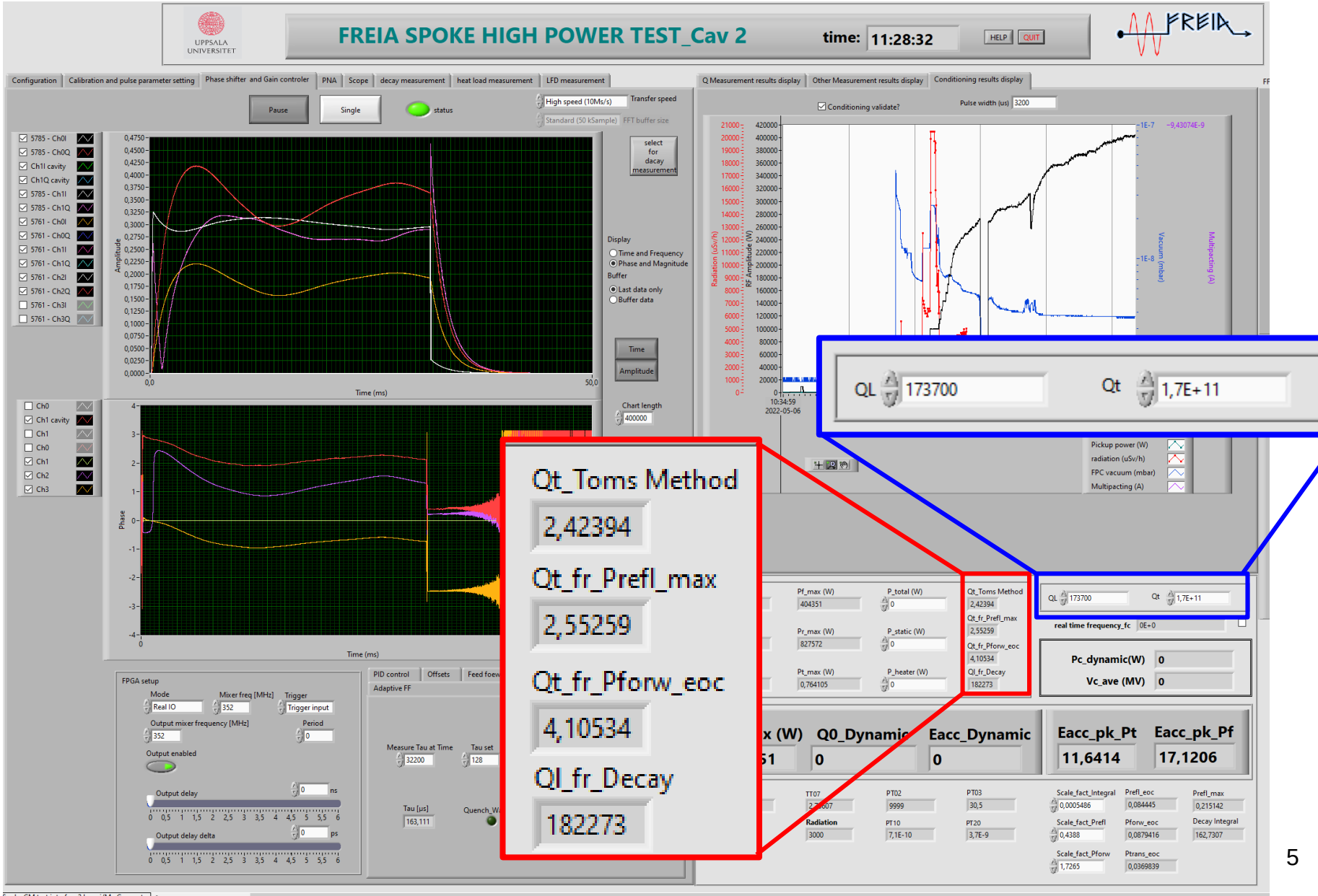
week		W20											
date		MON		TUE		WED		THU		FRI		SAT	SUN
		16-maj		17-maj		18-maj		19-maj		20-maj		21-maj	22-maj
		m	a	m	a	m	a	m	a	m	a		
present CM	**CM10**	warm up completed	CTS test		warm coupler conditioning	LN cooling		Lhe cooling	4K filling				
next CM	**CM11**				**If it moves at warm**	waiting in the docking area							
next next CM	**CM12**					preparation at Orsay							

If it not, TBD

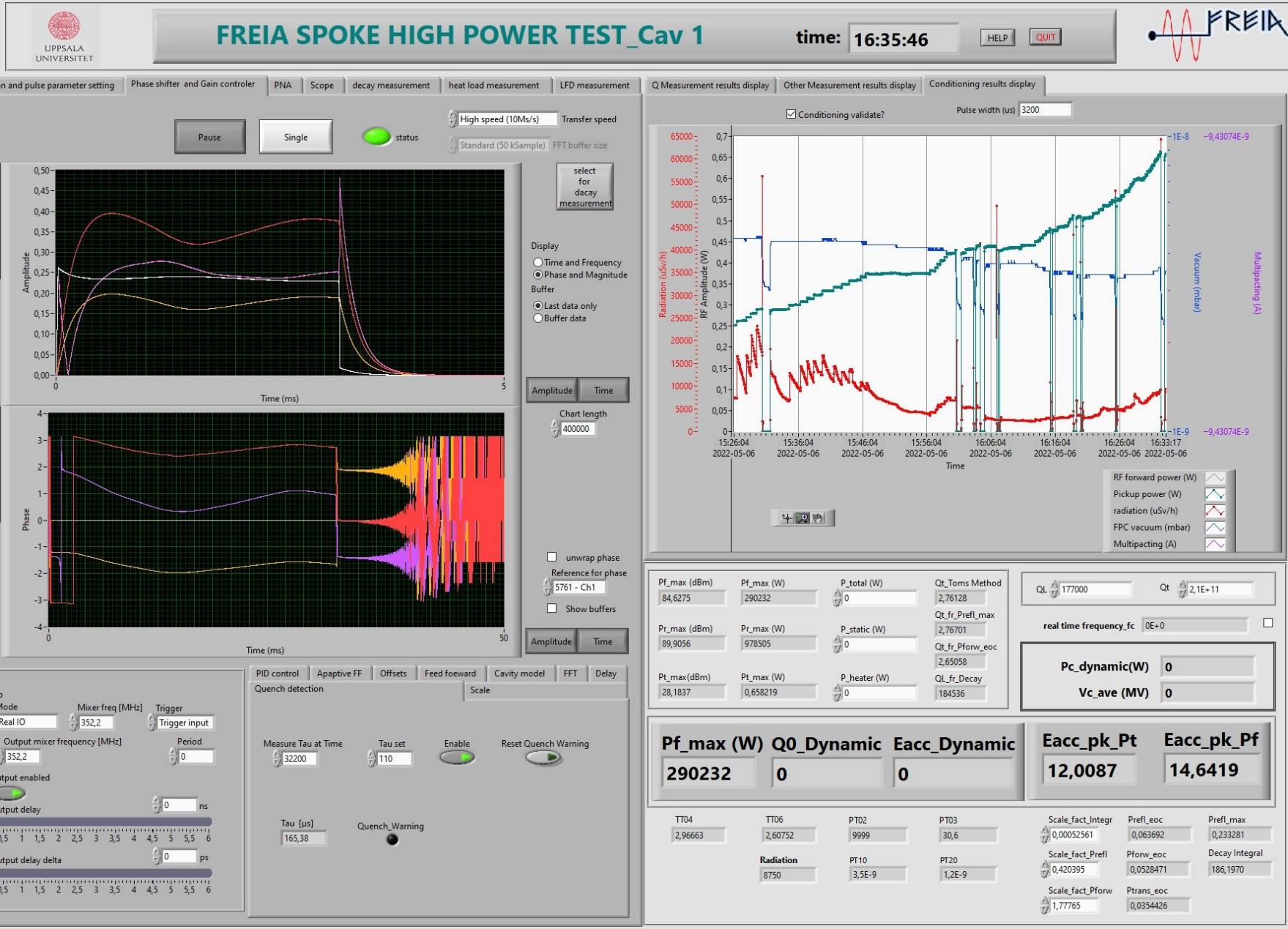
CM10: CAVOUT reached > 11.6 MV/m



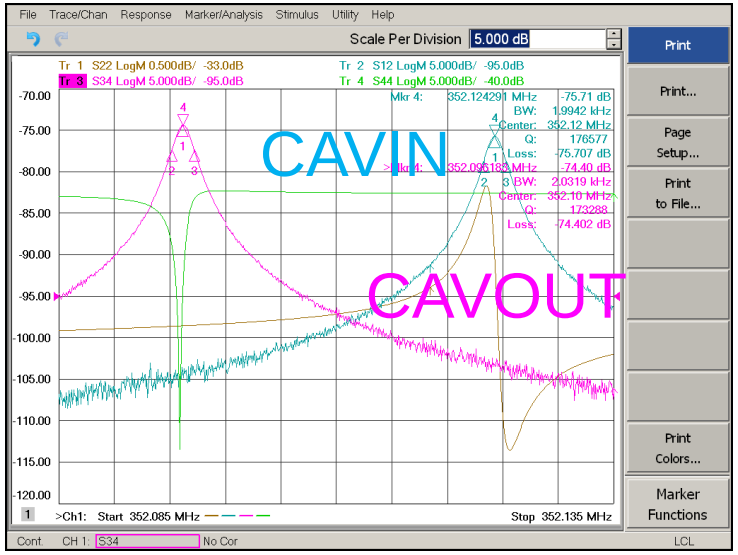
CM10: CAVOUT reached > 11.6 MV/m



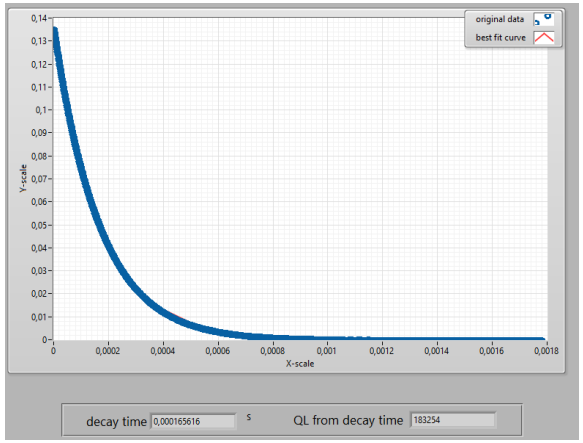
CM10: CAVIN reached 12MV/m



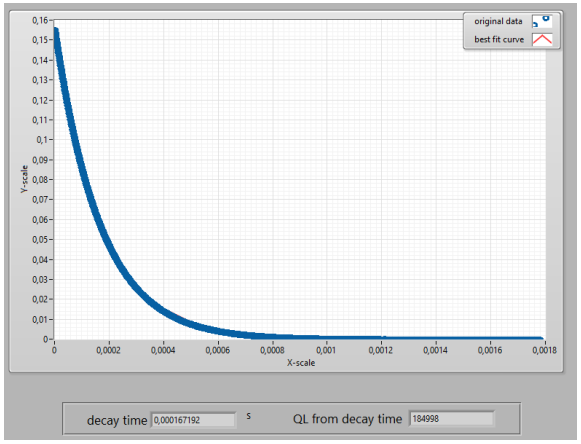
CM10: Q_L from VNA vs field decay



CAVIN



CAVOUT



	CAVIN	CAVOUT
BW Γ [kHz]	1.99	2.03
Q_L (VNA)	1.77e5	1.73e5
τ [us]	166	167
Q_L (field decay)	1.83e5	1.85e5

$$V(t) \propto e^{-t/\tau_L}$$

$$\tau_L = \frac{1}{\pi\Gamma}$$ Fourier transform

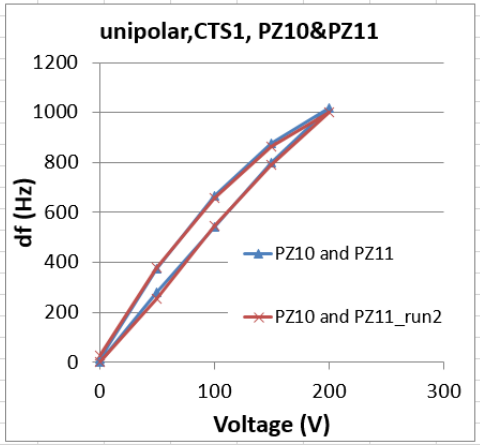
$$Q_L = \frac{f_0}{\Gamma}$$

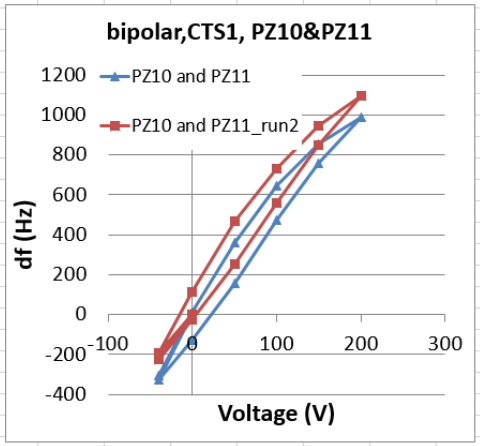
As usual, the values estimated from the field decay are larger

CM10: CTS1 piezo results

CAV IN BW (Hz)	1994
20220506 TT11=105K	
both piezos simulaneously	

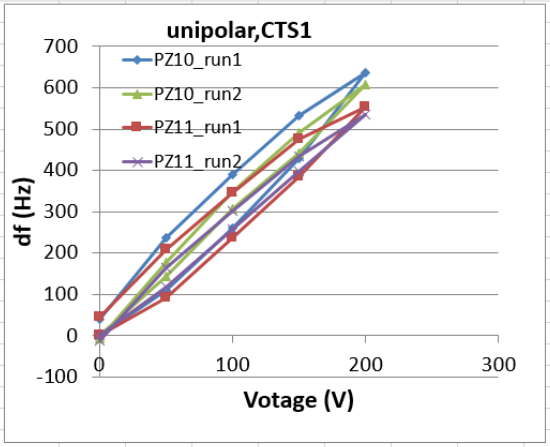
Voltage (V)	Phase (°)	df(Hz)
0	100,22	0
50	112,84	279,6031
100	124,64	541,0387
150	136,36	800,7018
200	146,19	1018,491
150	139,8	876,9169
100	130,24	665,1098
50	117,08	373,5427
0	100,84	13,73644
0	100,74	0
50	112,26	255,232
100	125,3	544,1404
150	136,48	791,8396
200	145,87	999,8802
150	139,7	863,1804
100	130,34	655,8044
50	117,84	378,86
0	101,96	27,02978
0	101,27	0
-40	86,54	-326,351
0	95,46	-128,724
50	108,4	157,9691
100	122,67	474,1289
150	135,47	757,72
200	145,85	987,6947
150	139,74	852,3242
100	130,46	646,7207
50	117,48	359,1416
0	101,89	13,73644
-40	87,54	-304,196
0	96,73	0
-40	86,56	-225,322
0	95,52	-26,8082
50	108,2	254,1242
100	121,89	557,4338
150	134,95	846,7853
200	146,06	1092,934
150	139,44	946,2638
100	129,67	729,804
50	117,75	465,7098
0	101,74	110,9993
-40	87,97	-194,083
0	96,72	-0,22156
tuning range bp		1318,256
tuning range up		999,8802

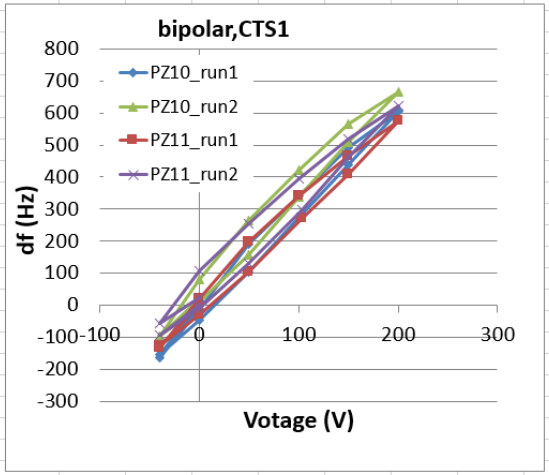




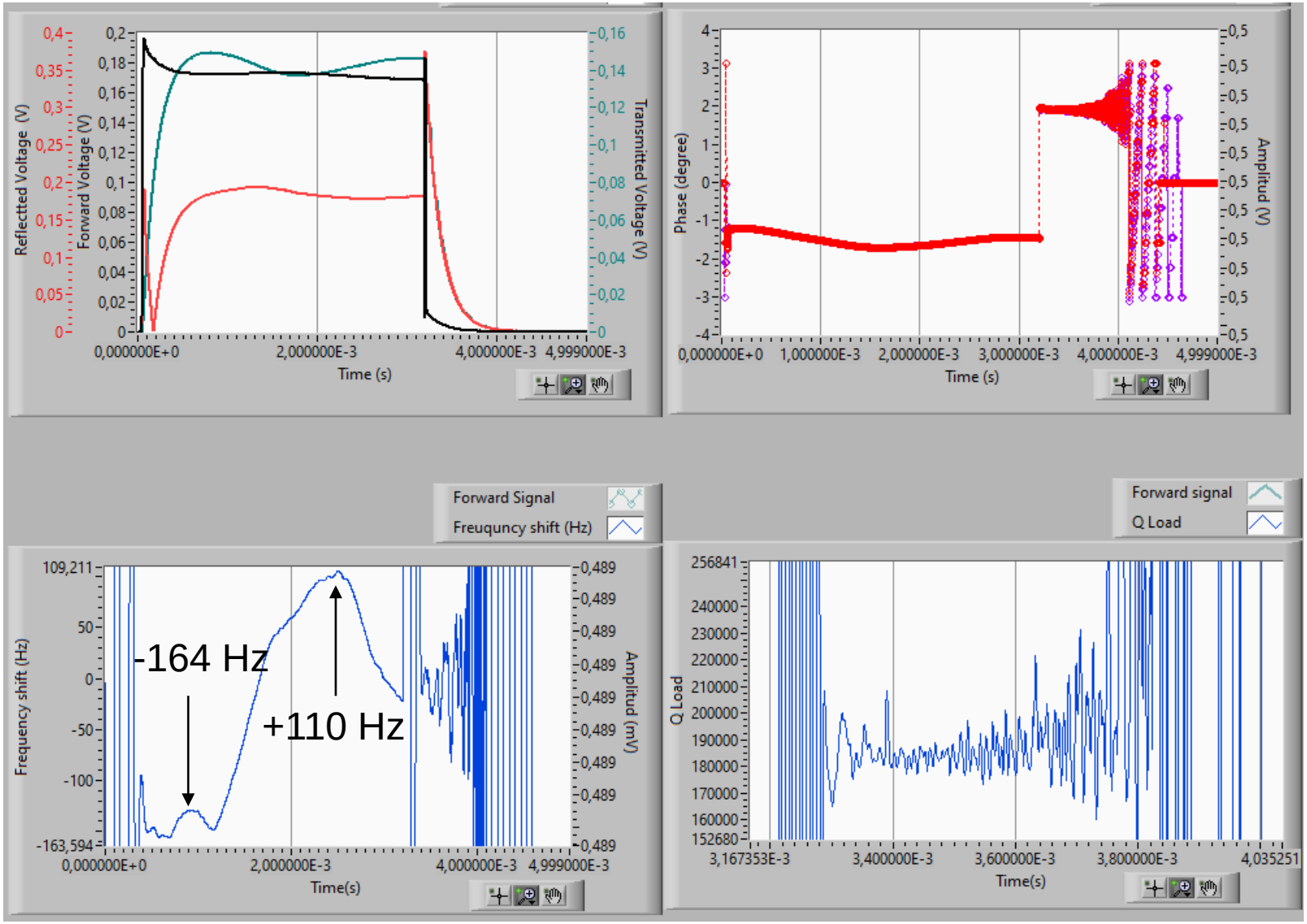
PZ10 only		
Voltage (V)	Phase (°)	df(Hz)
0	100,79	0
50	105,75	109,8916
100	112,59	261,4356
150	120,11	428,0453
200	129,45	634,9782
150	124,78	531,5118
100	118,4	390,1593
50	111,49	237,0644
0	102,53	38,55067
0	102,39	0
50	108,84	142,9033
100	116,25	307,076
150	122,37	442,668
200	129,78	606,8407
150	124,52	490,3024
100	118,13	348,7284
50	110,39	177,2444
0	102,1	-6,42511
0	102,34	0
-40	95,35	-154,867
0	100,26	-46,0836
50	106,96	102,3587
100	114,65	272,7349
150	122,19	439,7878
200	129,64	604,8467
150	124,46	490,0809
100	117,81	342,7464
50	110,9	189,6516
0	101,78	-12,4071
-40	95,01	-162,4
0	99,74	0
-40	95,42	-95,712
0	100,15	9,083778
50	106,81	156,6398
100	114,97	337,4291
150	122,62	506,9191
200	129,82	666,4391
150	125,22	564,5236
100	118,8	422,2849
50	111,63	263,4296
0	103,4	81,08933
-40	95,33	-97,706
0	100,64	19,94
tuning range bp		764,1451
tuning range up		613,2658

PZ11 only		
Voltage (V)	Phase (°)	df(Hz)
0	101,93	0
50	106,08	91,94556
100	112,62	236,8429
150	119,25	383,7342
200	126,92	553,6673
150	123,39	475,4582
100	117,54	345,8482
50	111,31	207,8191
0	103,93	44,31111
0	103,89	0
50	109,16	116,7598
100	115,53	257,8907
150	121,85	397,9138
200	128,06	535,4998
150	123,46	433,5842
100	117,48	301,094
50	111,28	163,7296
0	103,31	-12,8502
0	102,82	0
-40	97,02	-128,502
0	101,45	-30,3531
50	107,48	103,2449
103	115,05	270,9624
150	121,27	408,77
200	128,8	575,6013
150	123,86	466,1529
100	118,16	339,8662
50	111,76	198,0707
0	103,8	21,71244
-40	96,78	-133,82
0	100,85	0
-40	96,66	-92,8318
0	100,44	-9,08378
50	106,73	130,2747
103	114,28	297,5491
150	121,72	462,3864
200	128,94	622,3496
150	124,25	518,44
100	118,71	395,6982
50	112,3	253,6811
0	105,74	108,3407
-40	98,29	-56,7182
0	101,86	22,37711
tuning range bp		715,1813
tuning range up		548,35



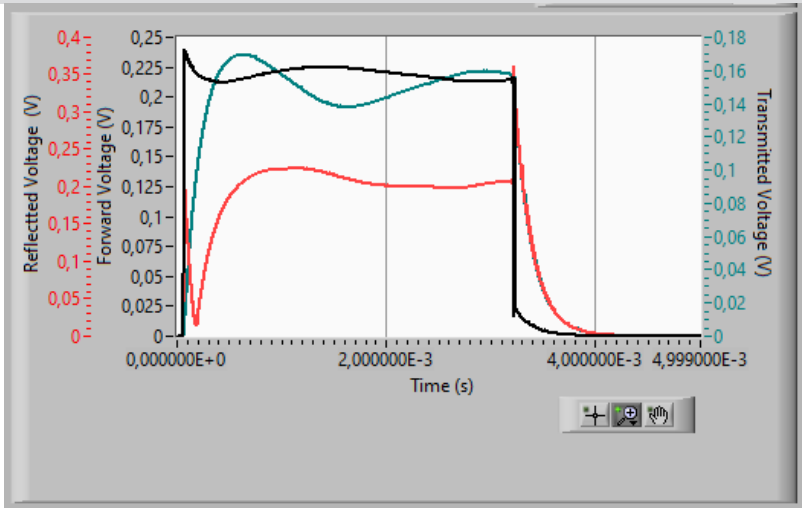


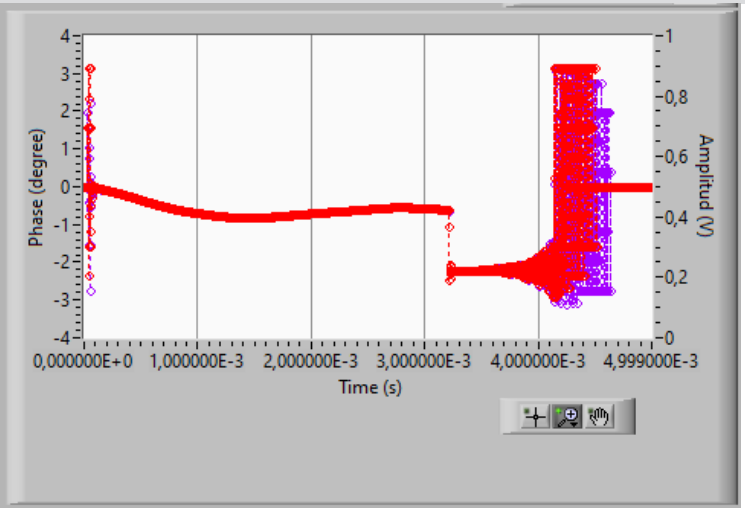
CM10: CAVIN LFD at 9MV/m at 352.21 MHz

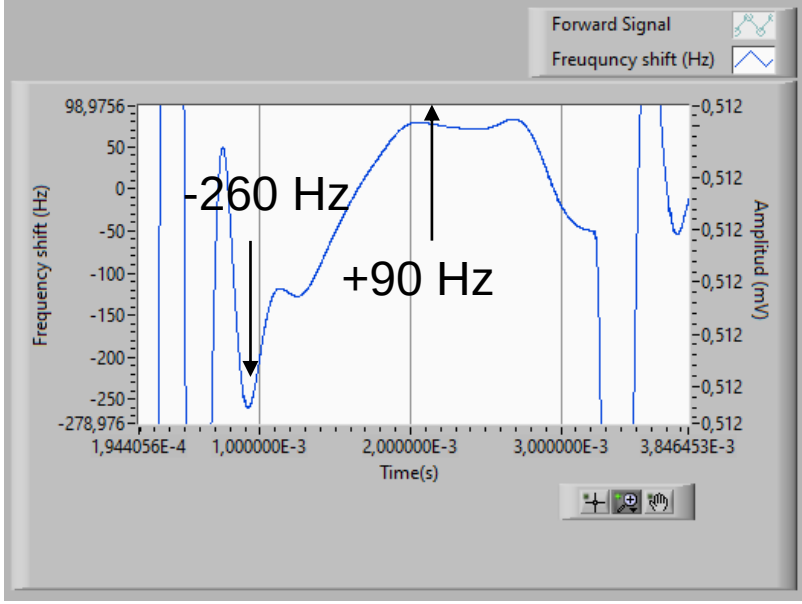


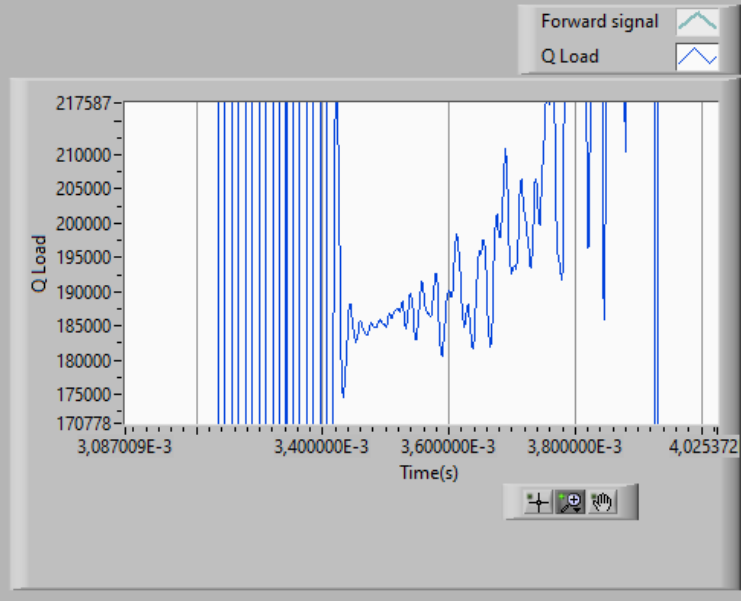
$|\Delta f| = 270$ Hz

CM10: CAVOUT LFD at 9MV/m **no CTS**



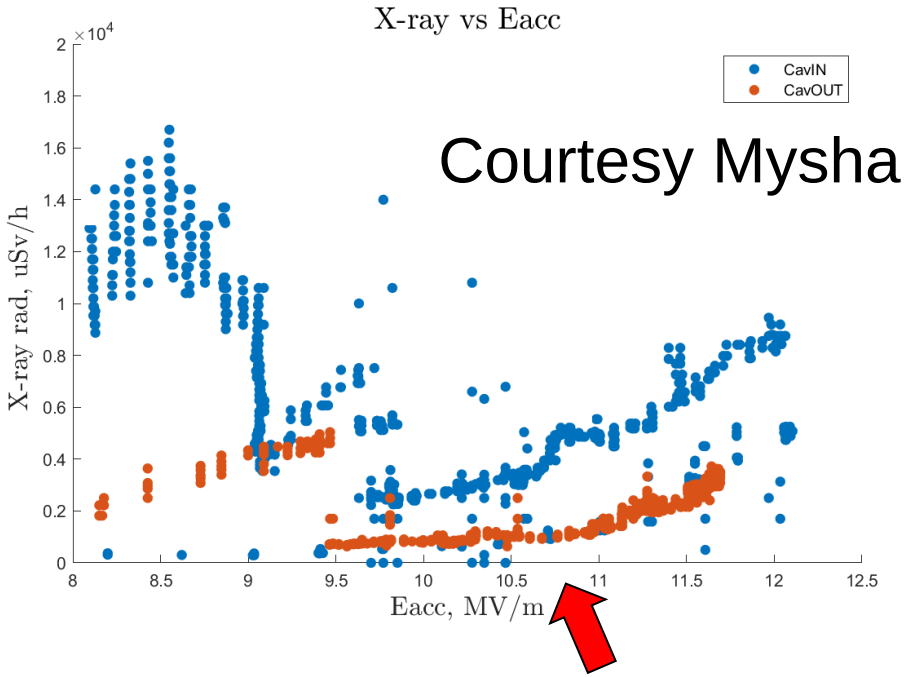






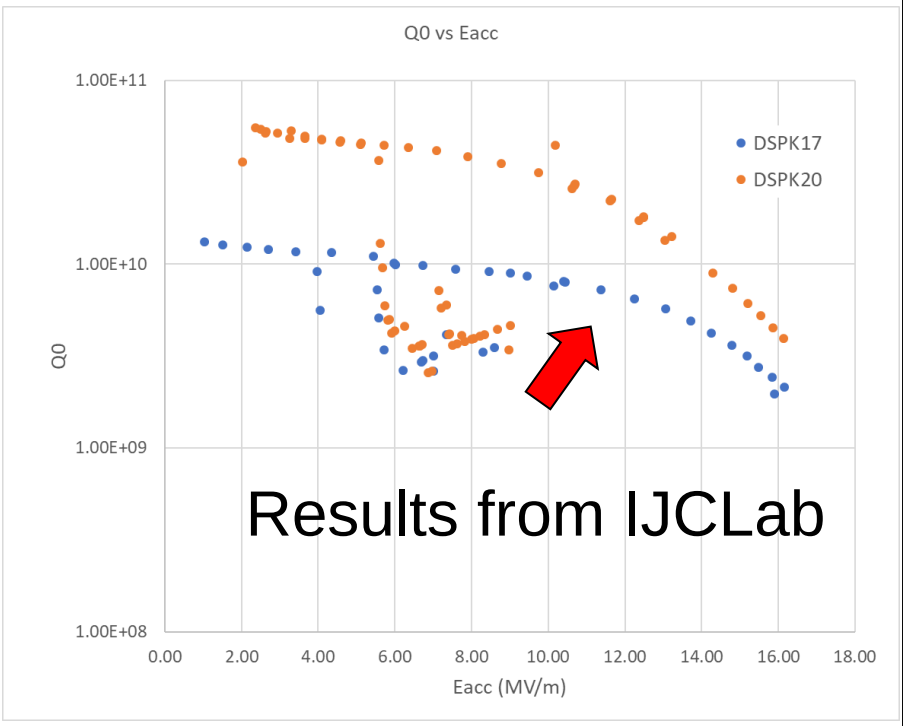
$|\Delta f| = 350$ Hz

CM10: CAVIN & CAVOUT field emission



Courtesy Mysha

10.5 MV/m

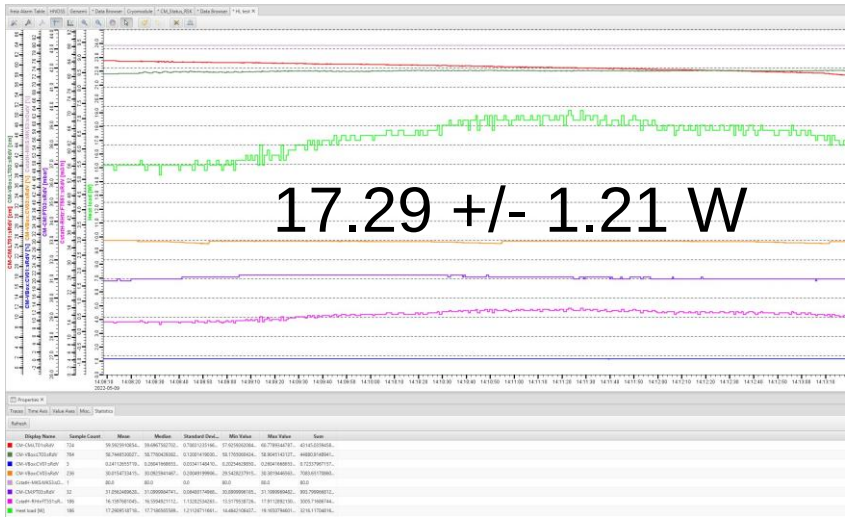


Results from IJCLab

(But Qt may be underestimated)

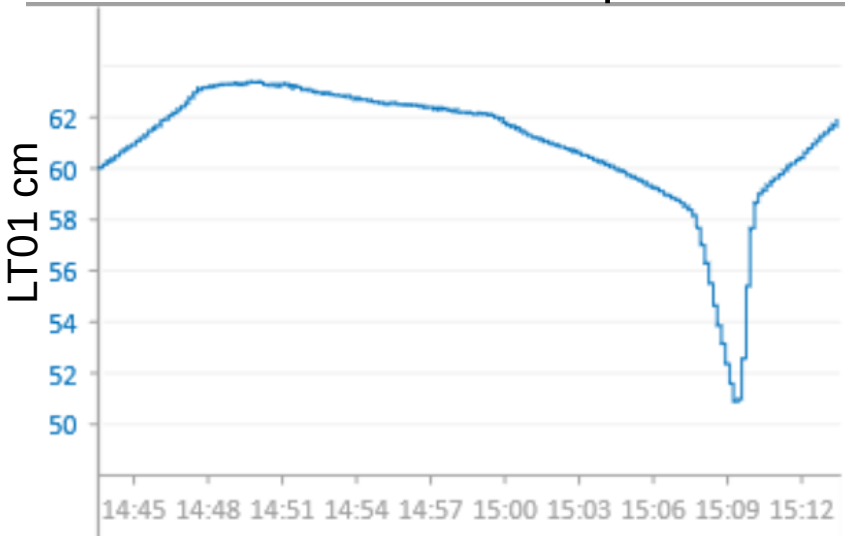
CM10: heat load (w/o CTS engaged)

From the GHe flow



From pressure rise

From LHe drop



- Data is ready
- Once L vs H is given, we will convert pressure & LHe to the heat load
- We may ask some detail of the calculation