



ESS weekly meeting (2021 W34)

A. Miyazaki et al.





FREIA Planning	2021-08-18																						20	22			
			Au	gust				Se	ptem	ber		Oc	ctobe	r		Nov	emb	ber		Dece	ember	-		J	anua	iry	
Equipment	Responsible		2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	سعن		أه	6	1	8	15	22	29
		week #	ŧ 31	32	33	34	35	36	37	38	39	40) 41	42	43	44		~	+ '	Ne	20		1	2	3	4	5
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Liquefier & 2K pumps	Esat										<u></u>			n٢	١١	16		\frown									
											<u> </u>	P	13														
RF power stations	Mykhailo																										
Cryomodule test stand	Akira				C۱	/01				C١	/104				CN	103				CM	06				C١	/107	

\rightarrow One week extended for stepper motor tests

FREIA Planning	2021-08-25									ſ		1			1		1	1		1					20	22			
				Aug	gust				Sep	pte	nbei	r	Oc	tobe	r		Nov	/eml	ber		Dec	ceml	ber			J	anua	ary	
Equipment	Responsible			2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	6	13	20	27	1	8	15	22	29
		wee	k #	31	32	33	34	35	36	3	38	39	40	41	42	43	44	45	46	47	48	49	50	51	1	2	3	4	5
Liquefier & 2K pumps	Esat																									•			
RF power stations	Mykhailo																												
Cryomodule test stand	Akira					CI	101					CI	V 104	1			CN	103				CN	106					CN	107
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W33&W34 progress and W35 planning



week							W33	}					
		M	NC	TU	E		WED	Т	ΉU	FRI		SAT	SUN
date		16-	aug	17-a	ug	1	8-aug	19	-aug	20-au	Jg	21-aug	22-aug
		m	а	m	а	m	а	m	а	m	а		
present CM	CM01	He purging	N2 cooling	4К соо	ling	LHe filling	coupler cold conditioning	2K pumping, f vs P	RF calibration, LLRF interlock	cavity MP con up to 121	nditioning VIV/m	therma	lize CTS
next CM	СМ04						no acvit	ities					
week							W34	1		_			
		M	0N	TUI	E		WED	Т	ΉU	FRI		SAT	SUN
date		23-	aug	24-a	ug	2	5-aug	26	-aug	27-ai	Jg	28-aug	29-aug
		m	а	m	а	m	а	m	а	m	а		
present CM	CM01	static heat Ioad				prepare m	otor driver			CTS test	at 4K		
next CM	CN/04	Phyt	Phytron driver did not work with acvitities We are here										

the LabVIEW code from Orsay

week							W35	W35									
	MON			TU	E		WED	Т	ΉU	FRI		SAT	SUN				
date		30-aug		31-aug		0	1-sep	02	-sep	03-se	qq	04-sep	05-sep				
		m	а	m	а	m	а	m	а	m	а						
present CM	СМ01	2K pumping	CTS test	CTS t	est	LFD	dynamics heat load	cavity me cont	easurement tinued	cavity measureme nt continued	wa	rming u	0				
next CM	СМ04		d	oorknob	moun	ting					(Goa					



- Even without the wooden box, our docking are is occupied by working place and plenty of pallets
- We are not allow to leave anything outside the building for a few days
- Considering that we anyway need the box before transport, having more module is not an option for us





Let's start from a good news 1/2











RE





Pressure rise method (relative)

From linear fitting

CM01 +1.28 mbar/min CM05 +1.29 mbar/min CM03 +1.27 mbar/min

They are consistent although CM05 and CM03 were measured w/ CTS engaged





CTS cooling down curve 1/2



Reminder: anomaly in CM03 (by Nicolas)











Issue 1: Phytron motor driver







No strange vibration unlike the one observed by ESS using the old beckhoff PLC



RS232 works



🖉 Minilog-Comm - Opera	tion								×
File View Transmission	Controller Windows Help)							
P A R 🛛 🛱 🖃	ΩΩ X BB A €	🗟 💡 🚺 1 2 3	45678	9 A B C	DEF				
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Coperation									^
Operation		MOP functions	Exist. Axes						
Avie	2+ (/+)		🗹 Axis 1 🛛 🕘	Powerstage S	ettings	\times			
AXIS	s2+(1+)	Axis1 M0P-	🗹 Axis 2 🔴	Axis X Axis	s Y				
		Axis1 M0P+	Axis 3	Ourrents	etting				
Axis1- (X-)	Axis1+ (X+)		Axis 5	Stop					
		Axis2 M0P-	Axis 6		0 0.2 0.4	0.6 0.8 1.0A			
Axi	is2- (Y-)	1.1.0.100.0	Axis 7	Run					
		AXIS2 MUP+	Axis 8		0 0.2 0.4	0.6 0.8 1.0A			
Go		Counter value		Boost					
Relative Axis1 ()	() 1600 Start	Axis1 (X)	3200		0 0.2 0.4	0.6 0.8 1.0A			
O Absolute Axis2 (1	() Start	Axis2 (Y)	1600	Step reso	lution and run current del	ay time			
				Step reso	lution	Delay time			
	! STO	P !			1/8 Step	✓ 20 ms			
Frequency									
Axis1 (X)					OK	Cancel Apply			
0 4k	8k 12k 16k 2	0k 24k 28k 32	k 36k 40k						
Axis2 (Y)									
0 4k	8k 12k 16k 2	0k 24k 28k 32	k 36k 40k						
									~
Ready					MCC	COM3 <open> 57600, n, 8,</open>	1	NUM	

We can rotate the motor by Phytron's software but did not know all the *engineering parameters*



UPPSALA UNIVERSITET



Main VI does not work ⊗ (communicati on error)

This main VI convert *physical parameters* \rightarrow Decision: wait until we know to *engineering parameters* complete instruction from experts ¹³



Fresh news: experts helped this morning

David Ledrean@Orsay checked all the parameters

- Three currents setup
 - Stop current 0A
 - Run current 0.6A
 - Boost current not used
- Step resolution 1/8 step
 - So that 1600 steps gives one motor shaft turn
 - No comment on delay time
- Frequency 2400 Hz
- "Acceleration" needs command-line and "XP15R" command showed 500000Hz/s which is correct

Send to the controller	Abc> ABC Abc> Abc
XP15R	
Receive from the controller	
<nak> <nak> <ack> 500000</ack></nak></nak>	,

LabVIEW still does not work but not necessary

	Cattinger				~
Powerstage	settings				~
Axis X Ax	is Y				
Current : Stop	setting 0 0.2	0.4	0.6	0.8	1.0A
Run	0 0.2	0.4	0.6	0.8	1.0A
Boost	0 0.2	0.4	0.6	0.8	1.0A
Step res	olution and run o	urrent delay	time		
Step res	olution	D	elay time.		
÷	1/8 Step		▲ ▼	20 ms]
		MOP function	s	Exist. A	xes
xis2+ (Y+)		Axis1	MOP-	Axis	1
	Axis1+ (X+)	Axis1	MOP+	Axis	4
		Avie?	MOD-	Axis	5





Issue 2: FREIA LLRF system 1









Issue 2: FREIA LLRF system 1





- Individual modules (ADCs + FPGA) work fine after summer vacation
- Synchronization (trigger) through PXI crate was malfunctioning because of a change in the system settings → Works fine after a correction in settings
- Cause still unknown
 - Hard reset after the power failure this summer (thunder storm \rightarrow power-cuts)?
 - Some sort of reset or change in the system settings when the RS-232 module was installed?



W33&W34 progress and W35 planning



week							W33						
		M	ON	TUE			WED	Т	HU	FRI		SAT	SUN
date		16-	aug	17-au	Jg	1	8-aug	19	-aug	20-au	ıg	21-aug	22-aug
		m	а	m	а	m	а	m	а	m	а		
present CM	СМ01	He purging	N2 cooling	4К соо	ling	LHe filling	coupler cold conditioning	2K pumping, f vs P	RF calibration, LLRF interlock	cavity MP cor up to 12M	nditioning MV/m	therma	lize CTS
next CM	СМ04						no acviti	ties					
week	(W34	Wea	are her	е			
		M	ON	TUE			WED	Т	ΉU	FRI	FRI		
date		23-	aug	24-ai	Jg	2	5-aug	26	-aug	27-ลเ	Jg	28-aug	29-aug
	•	m	а	m	а	m	а	m	а	m	а		
present CM	СМ01	static heat Ioad				prepare m	otor driver			CTS test	at 4K		
next CM	СМ04		·				no acviti	ties	Phytro	on driver	' is Ok	K but	doub
									in terr	perature	e on s	teppe	er
week	[W35	1	motor	^r during a	cooling	a dov	vn
		M	ON	TUE			WED	Т	HU	FRI		SAT	SUN
date		30-	aug	31-aı	lg	0	1-sep	02-	-sep	03-se	g	04-sep	05-sep
		m	а	m	а	m	а	m	а	m	а		
present CM	СМ01	2K pumping	CTS test 2	CTS te	est	LFD	dynamics heat Ioad	cavity me cont	asurement inued	cavity measureme nt continued	rming up)	
next CM	CM04		de	oorknob	moun	ting	•				(<u> 202</u>	