



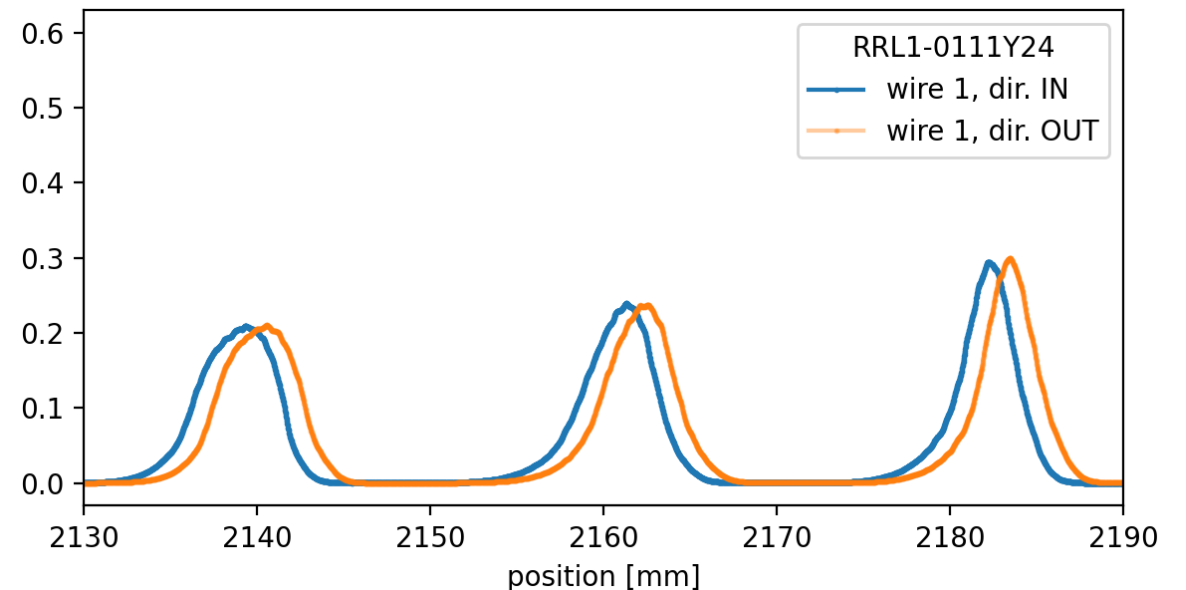
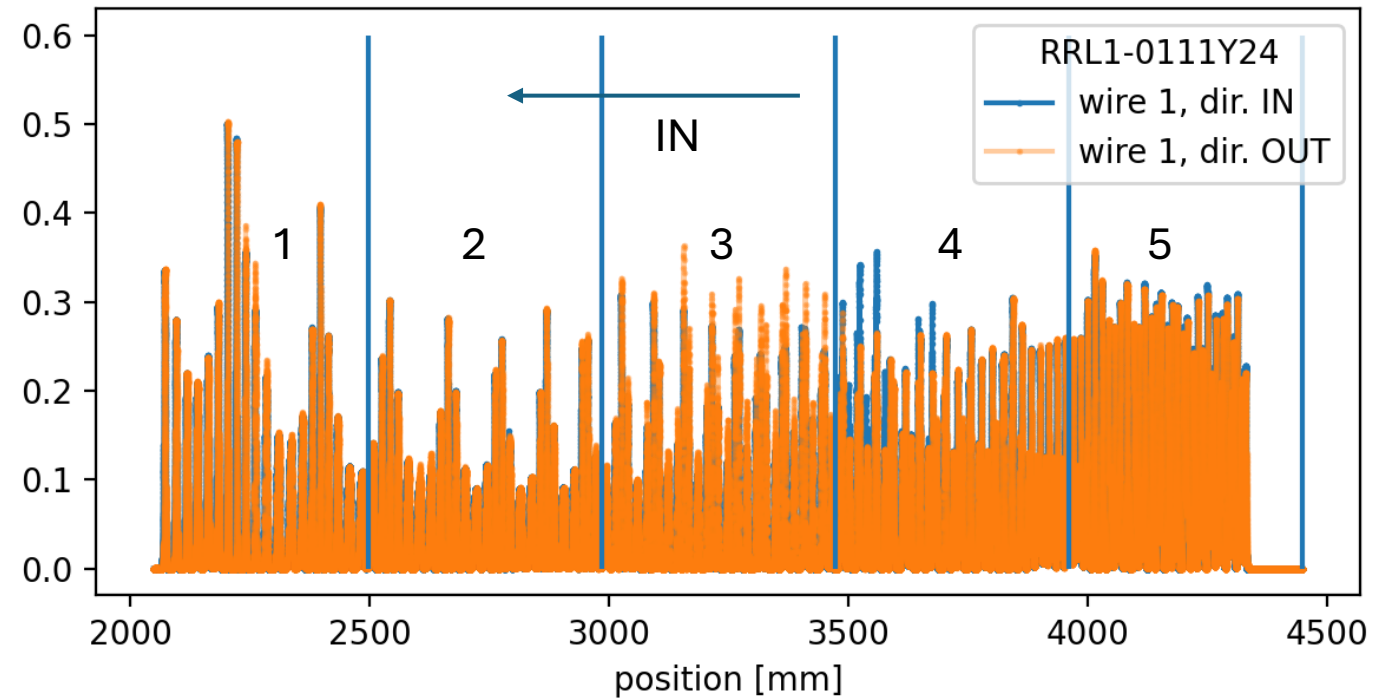
Investigation of RRL signal shift between IN and OUT scan

Beam Development debriefing
December 4th, 2024

Test by: Mariusz, Raphael, Martin, Simon, Jerome
PSI

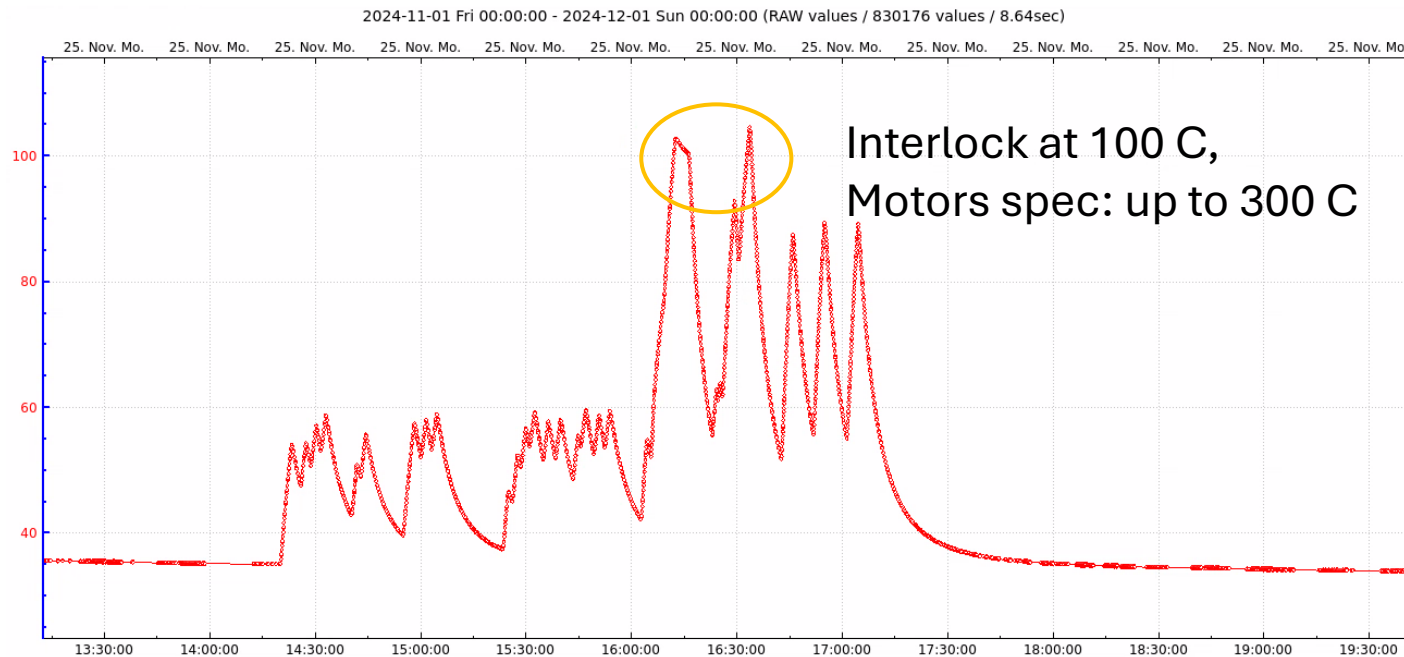
Context

- RRL measurements during movement IN and OUT do not overlap.
- Because of huge number of points wagon must stop 5 times in each direction to allow data transfer.
- Each stop lasts about 1.2 second.
- Time between stops (a segment): about 16.9 seconds.



Experiment

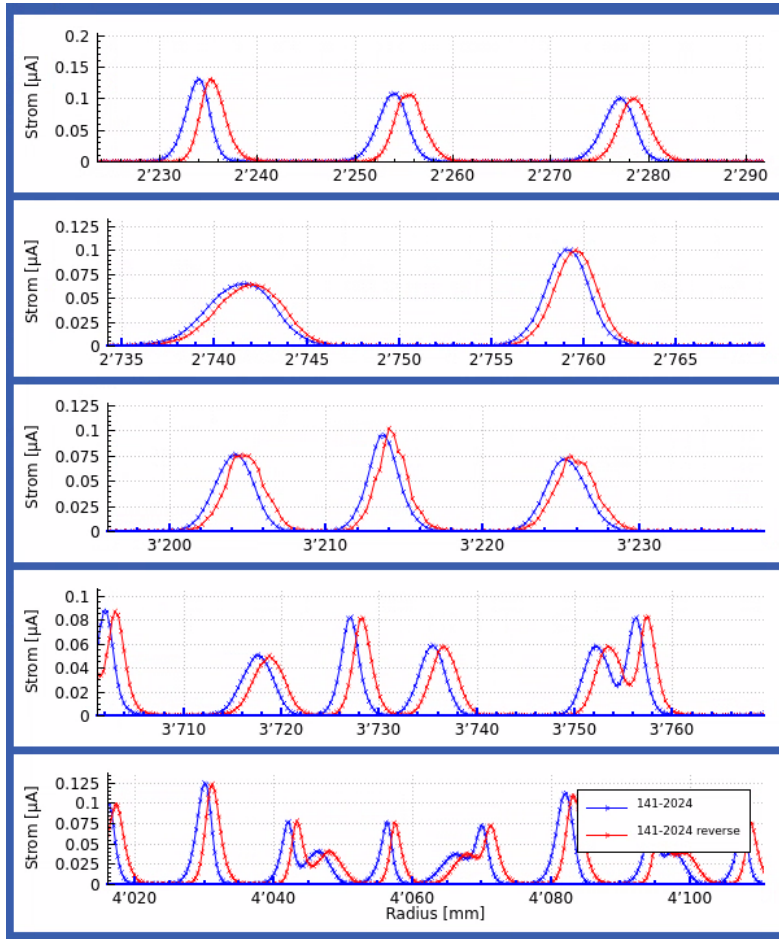
- If the IN-OUT shift is due to movement of the wagon due to pulling force of the cable tray, then breaks should be used during intermediate stops.
- The motor we use phytron VSS 33.200.1.2 does not have the break feature, but the controller can provide “holding current (Stoppstrom)” which should in principle prevent unintended movement of the motor. “Holding current” flows through the motor all the time.
- We tried to apply “holding current” of 1.1 A (same as running current). Motor got quite hot!



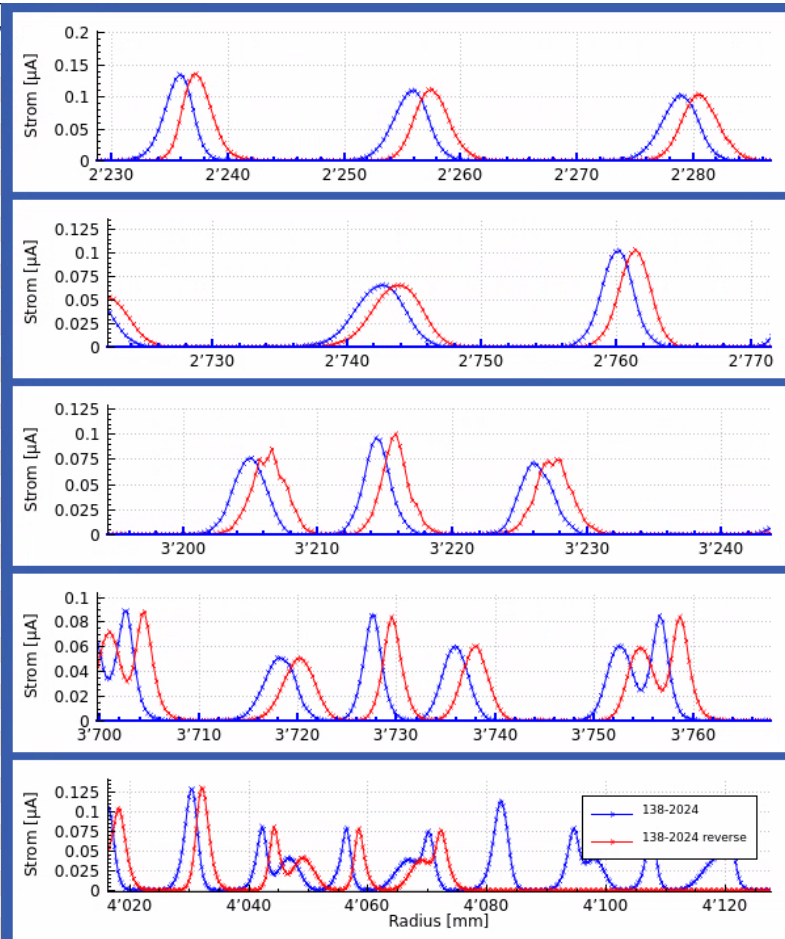
Experiment

without holding current (141)

with holding current



Minisave		
Gerät	Wert	Einheit
MNC3	102.70	uA
AND1	806.69	A
AND2	1145.36	A
EICV	133.31	kV
MXC1	98.80	uA
MNS16	-6.63	mm
MNS18	-1.03	mm
MNS20	0.12	mm
HS	928.13	A
HS:FEIN	5.46	A
CR1V	792.54	kVp
CR2V	844.02	kVp
CR3V	866.67	kVp
CR4V	891.05	kVp
CR5V	475.55	kVp
CIPMO	24.81	Grad 50
CRPHFT	23.81	Grad 50
CRREV:FSOL	203.14	Umlauf
CRREV:FIST	182.32	Umlauf
SND2Y	-1.80	A
TR1HA	3	Units
TR1HP	48	Grad
TR2HA	4	Units
TR2HP	78	Grad
TR3HA	16	Units
TR3HP	45	Grad
SND3Y	0.15	A
TR17HA	64	Units
TR17HP	184	Grad
MRFEIN	88.55	Grad
MRFAUS	96.57	Grad
RRL1A:WATI	100.00	◊s
RRL1A:CCW	65.00	Steps
RRL1ATEMP	51.90	degC
RRL1BTEMP	35.30	degC
RRL1CTEMP	35.30	degC
RRL1WTO	35.60	degC
RRL1WTU	34.40	degC



Minisave		
Gerät	Wert	Einheit
MNC3	106.60	uA
AND1	806.67	A
AND2	1145.38	A
EICV	133.31	kV
MXC1	103.10	uA
MNS16	-6.60	mm
MNS18	-1.11	mm
MNS20	-0.10	mm
HS	928.21	A
HS:FEIN	5.48	A
CR1V	793.07	kVp
CR2V	844.01	kVp
CR3V	866.68	kVp
CR4V	891.10	kVp
CR5V	475.96	kVp
CIPMO	24.81	Grad 50
CRPHFT	23.81	Grad 50
CRREV:FSOL	203.13	Umlauf
CRREV:FIST	182.32	Umlauf
SND2Y	-1.74	A
TR1HA	3	Units
TR1HP	48	Grad
TR2HA	4	Units
TR2HP	78	Grad
TR3HA	16	Units
TR3HP	45	Grad
SND3Y	0.15	A
TR17HA	64	Units
TR17HP	184	Grad
MRFEIN	88.63	Grad
MRFAUS	96.61	Grad
RRL1A:WATI	100.00	◊s
RRL1A:CCW	66.00	Steps
RRL1ATEMP	76.70	degC
RRL1BTEMP	35.10	degC
RRL1CTEMP	35.00	degC
RRL1WTO	35.90	degC
RRL1WTU	34.60	degC

RRL1A Strommessung	
Datum	Mon 25 Nov
Zeit	16:09:18
Endzeit	16:12:31
Jahr	2024
Messung	138
Bereich Start	2087 mm
Bereich Ende	4487 mm
RRL1A Strommessung	
Reset	
Scan + Plot data	
Nr	138
Jg	2024
Select Date	
0	Select Current 3000
Log Scale	
Keep	
Print	ELOG
ADC	After
Debug	
Quit	

Other measurements

- Also tried various motor settings

Conclusions

- Holding current heats up the motor too much.
- It does not seem to have effect on IN-OUT shift.
- Need to investigate this phenomena during shutdown.
- Need to investigate what has changed with the motor during the experiment (spare motor ordered).