



X-Boxes Update

22.01.2025

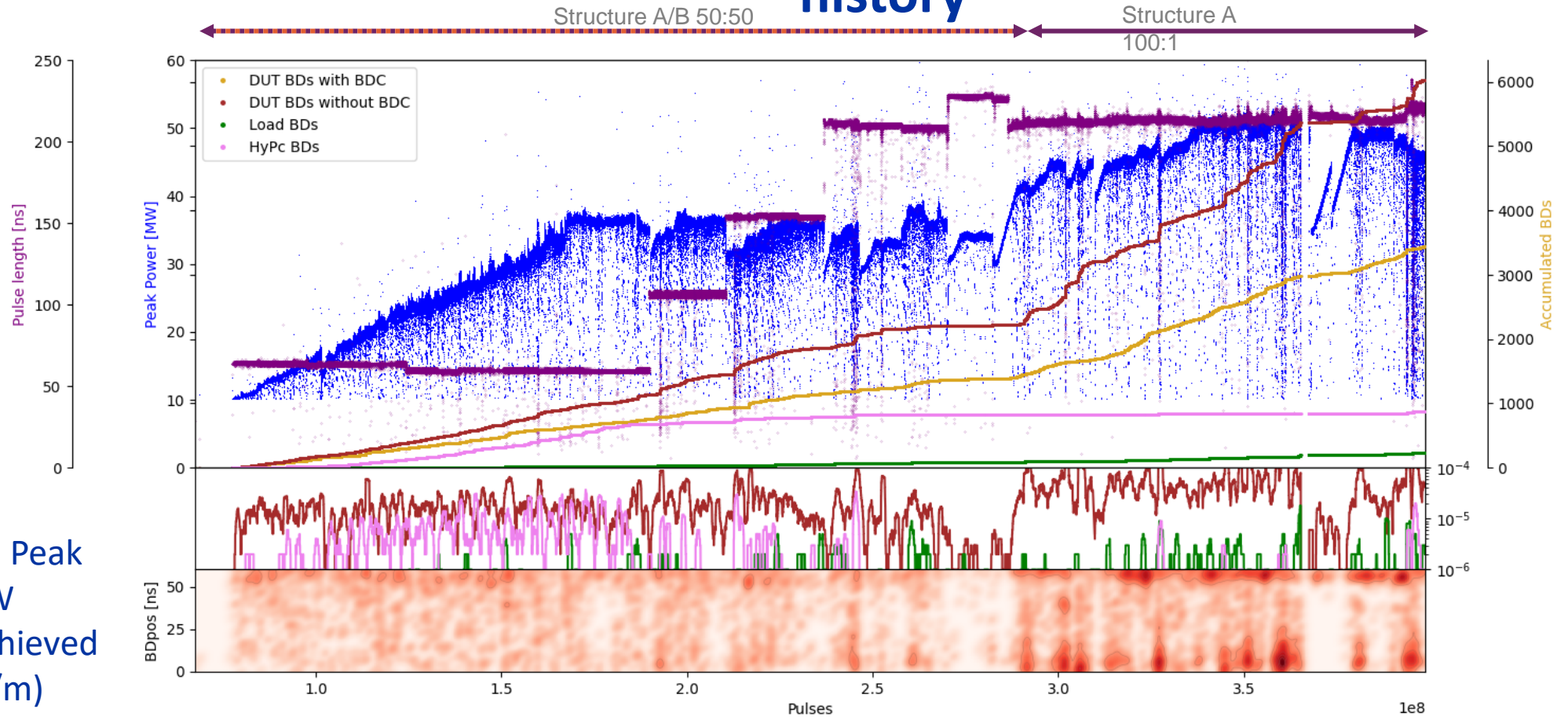
The image shows a complex industrial environment, likely a particle accelerator or laboratory. In the foreground, there are several robotic arms with red joints and silver bodies, mounted on a yellow frame. The background is filled with various pieces of machinery, pipes, and electrical conduits. A large blue circular graphic is overlaid on the right side of the image, containing white text.

XBOX2

Conditioning of TD31N3 and N4
Soon: refurbishing of the modulator

Xbox 2 TD31

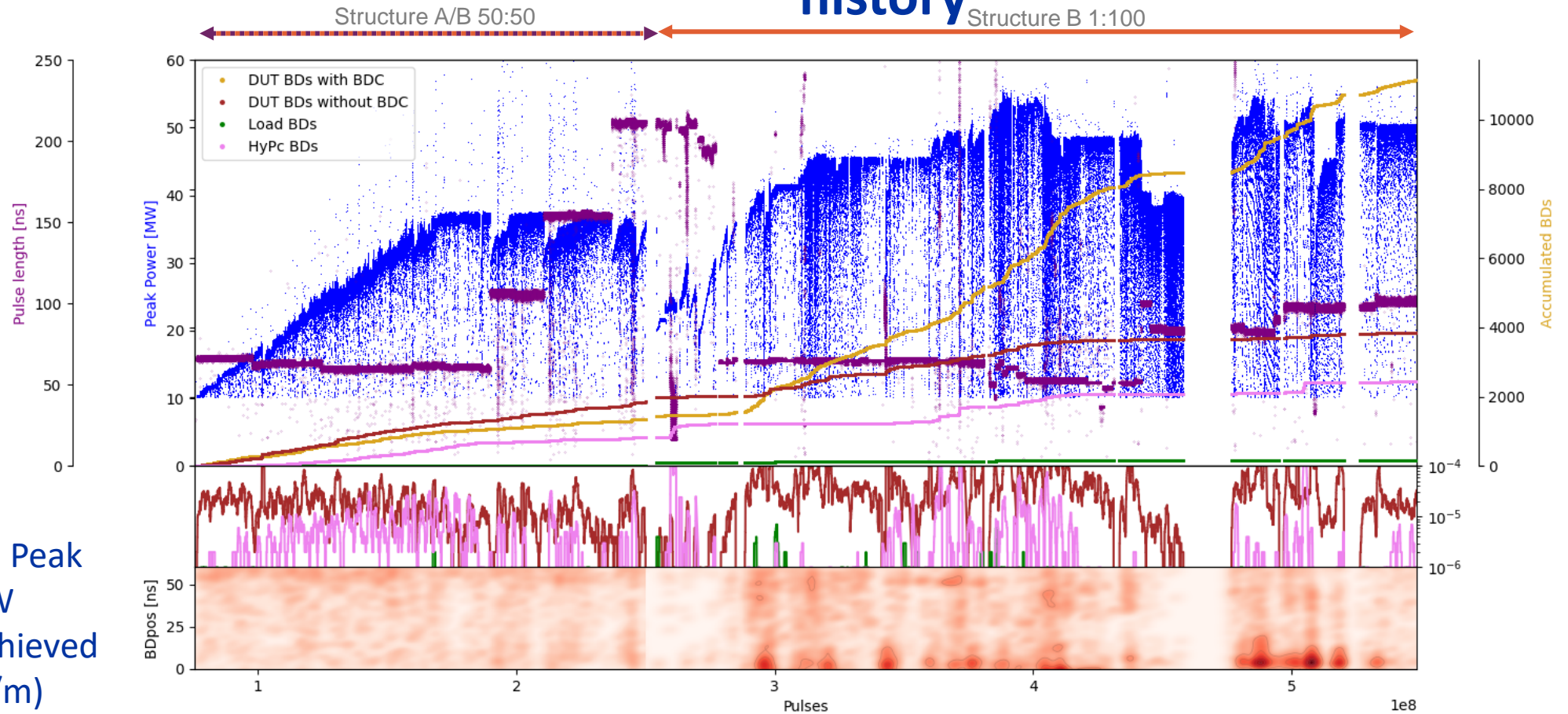
TD31N3 conditioning history



Achieved unloaded Peak Power 36.1MW
Max. Peak Power achieved 50MW (~80 MV/m)

Xbox 2 TD31

TD31N4 conditioning history



Achieved unloaded Peak Power 36.1MW
Max. Peak Power achieved 54MW (~89 MV/m)

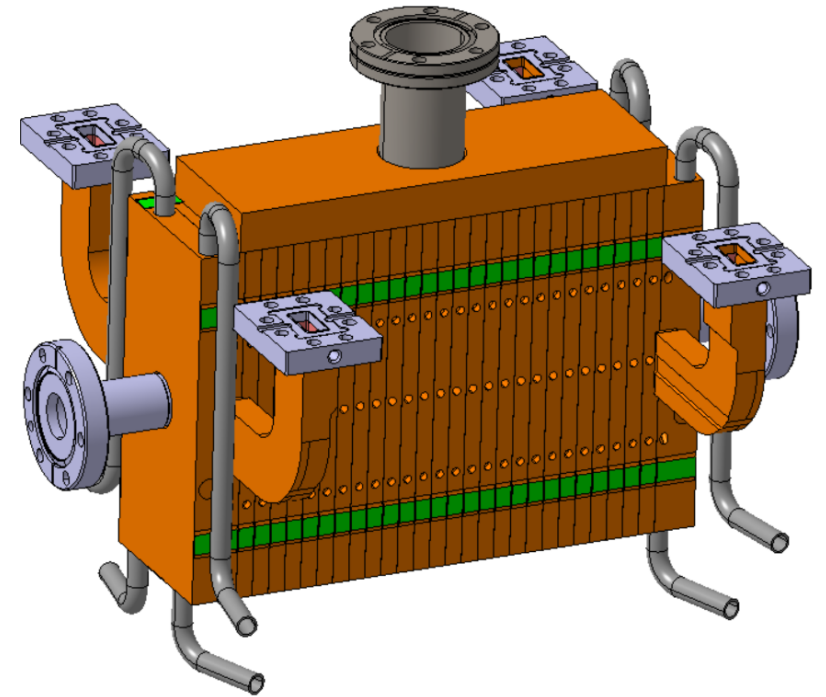
Xbox 2 future plans



Refurbishment of ScandinoVA modulator to improve operation at higher voltages



Integration of Barrel Open Cavity pulse compressor for high power testing



Integration and high power testing of Smartcell

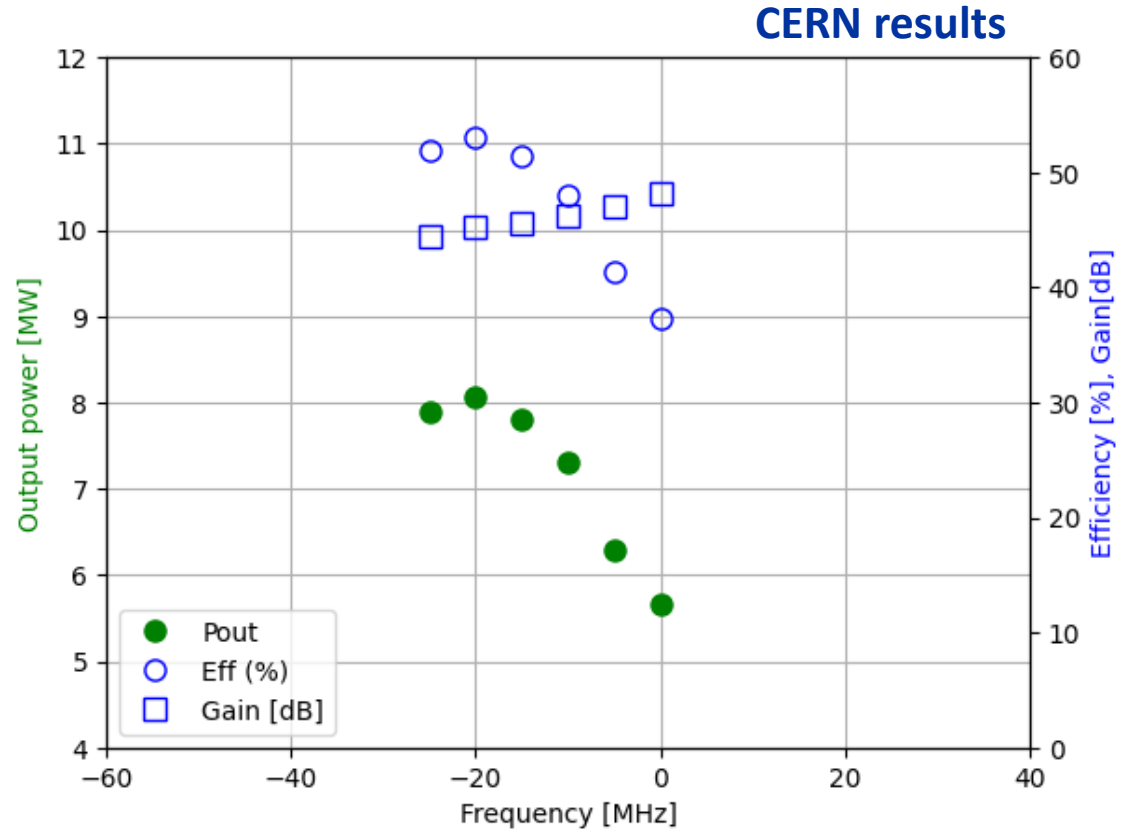
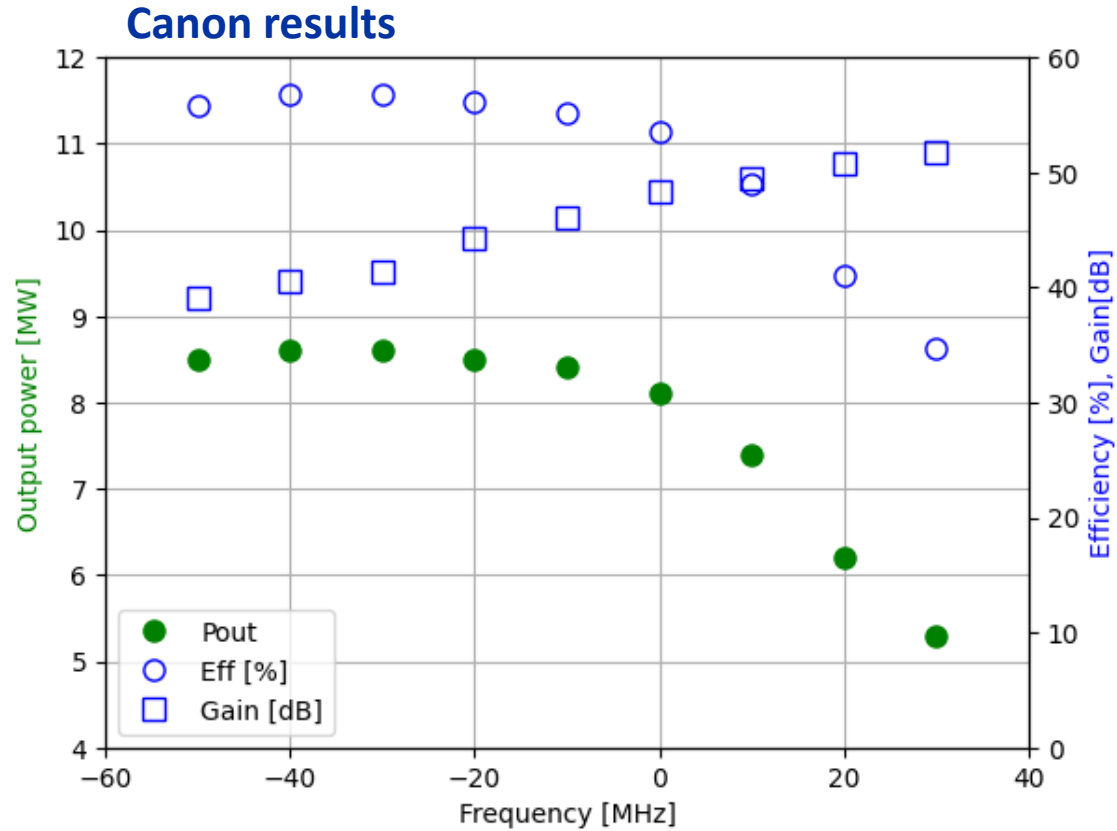


XBOX3

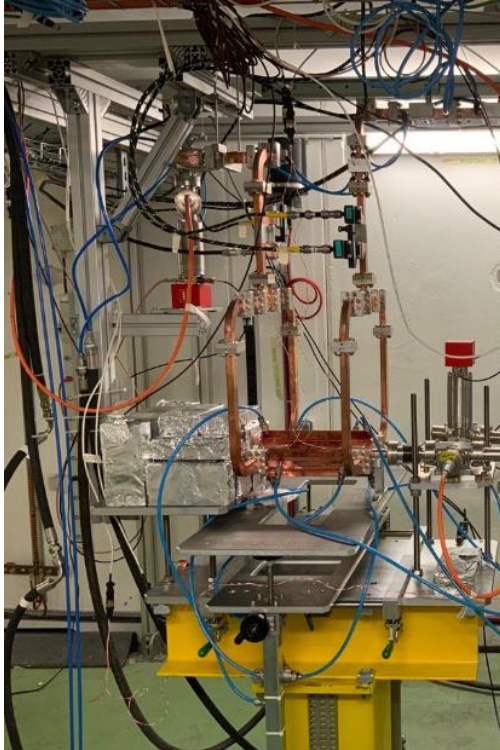
Canon E37117 klystron tested
Next: new integration (TD31 and TD26)

Xbox 3 HEK test results

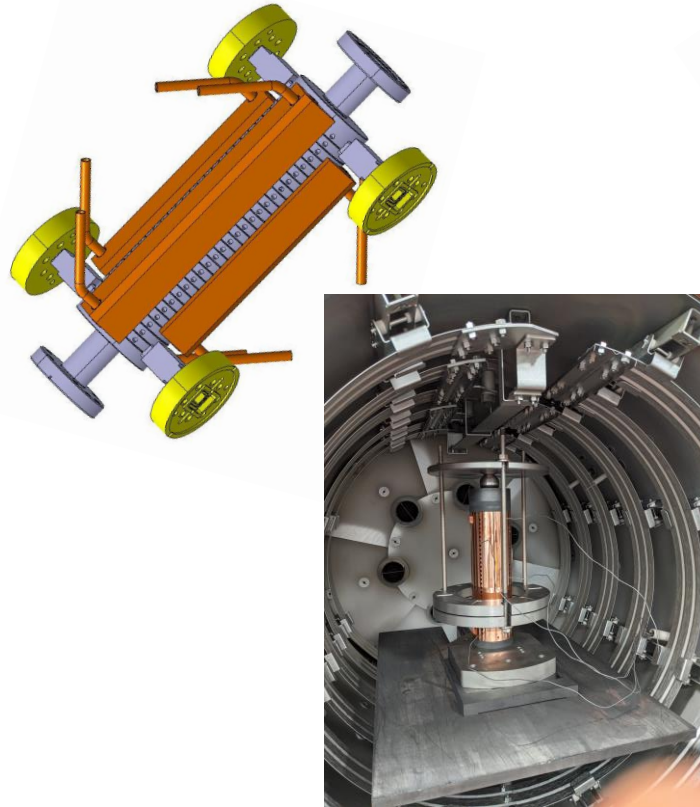
22G002



Xbox 3 future plans



Continue conditioning of TD31 N1 and N2



Integration and conditioning of structures TD26 from CIEMAT



Integration and conditioning of iFast accelerating structure

Xbox 3 –Integration planning

Tas	Task2	Description	Previou	Responsible	Resources	Start date	End date	Done?
A	Opening of Xboxes	(No a task) Waiting end of IMPACT for electrical works						
B	Leak detector	(Not a task) Waiting for answer for repairing or buying leak detector						
1	Klystron/modulator system							
1.1	Test of TDK Lambda	Previous test of units before installation	A	AC	PAA/SGA			
1.2	Installation of TDK Lambda	Installation and configuration for remote control	1.1	PAA	AC/ SGA			
1.3	Test of TDK Lambda	Test after installation	1.2	PAA				
1.4	Gain curves KLYA and KLYB	Curves @(nominal freq, nominal voltage)	1.3	PAA				
2	Test of structures TD26 and TD31							
2.1	Leak test of TD26		B	SGA				
2.2	Leak test of TD31		B	SGA				
2.3	RF test of TD26		2.1	PAA				
2.4	RF test of TD31		2.2	PAA				
3	Integration of structures							
3.1	Integration plan for TD26	Define components needed and define plan		PMS	SGA, PAA			
3.2	Search components needed	Search components listed in integration plan and do shopping list	3.1	KSK				
3.3	Search ion pump supports		3.1					
3.4	Search RF structure supports	search in stock for supports for both structures	3.1					
3.5	Manufacture support for ion pump	only if no supports available	3.3					
3.6	Manufacture support for structures	only if no supports available	3.4					
3.7	Pulse compressor pipes	Manufacture and install new pipes	A					
3.8	Order/Buy components needed		3.2	PMS	SGA			
3.9	Break vacuum		A	SGA				
3.10	Deinstall HPDCs+loads in lines 1 and 2		3.9	SGA	KSK, PAA			
3.11	Install structure TD26 and components		3.10	SGA	PAA, KSK			
3.12	Check structure TD31 and line2		A	SGA	KSK, PAA			
3.13	Baking of waveguides		3.11,3.12	SGA	PAA, KSK			
3.14	Start pumping lines		3.13	SGA	KSK			

Xbox 3 - Integration planning

4	RF channels							
4.1	Define RF channels needed			PAA				
4.2	Verify RF cables	Verify labels and channel in ACQ system for every RF cable+ meas. Attenuation	A, 4.1	PAA				
4.3	Calibration of ADC cards	High power calibration of cards	4.2	PAA				
5	Chillers							
5.1	Test chillers			SGA	AC			done
5.2	Manufacture new extended wiring			AC	KSK			
5.3	Upgrade switchboard		A	AC	SGA, KSK			
5.4	Connect chillers to bunker		5.3	SGA	AC, KSK			
5.3	Integrate with Labview software	Check connectivity and correct reading of flow with Labview software	5.2	PAA				
6	Interlock system							
6.1	Remove bypasses in IONP controlers		0	PAA	AC			
6.2	Configuration of IONP controllers	Check vacuum interlocks are operational + modify limits	6.1	PAA				
6.3	Check interlocks for RF	Check KLY RFL, Structure RFL and Load RFL are operational	3.3	PAA				
6.4	Define interlock values for RFL channels		6.3	PAA				
6.5	Check DC interlock	Adjust value of DC down and up limits	0	PAA				
7	Labview code							
7.1	Check BD flags definition			PAA				
7.2	Check conditioning algorithm	Check algorithm behaviour		PAA				
7.3	Check interlock polarities		6	PAA				
7.4	Check software interlocks		6	PAA				
8	Operation							
8.1	Create new folder for conditioning data			NCL				
8.2	Empty data in unit			PAA				
8.3	PulseCount set to 0			PAA				
8.4	Start conditiniong		0-7, 8.1,8.2,8.3					



home.cern

X-Box 2: Reminder on BD classification

