

Beta-Beating due to final DY of Triplet Quadrupoles

- DY finalized
- Bad guy 1 (hardware): IR1L
- Bad guy 2 (political): IR5R
- DY in IR5R (bad & proposed Corr.)
- Effect on DY
- Action to deal with situation
- After pressure tests → IR8R DY~3mm!

IP5	HCLQXA_001-FL000005			HCLQXB_001-FL000003			HCLQXC_001-FL000007					
	I	IP side	Q1R5	NIP side	I	IP side	Q2R5	NIP side	I	IP side	Q3R5	NIP side
Deviation of Beam Screen		-1.84		9.31		-9.08		-7.85		9.7		9.45
Interconnection default	-1.84				-18.39				17.55			
already applied shift			-4				7				-6	
Interconnection with applied shift	-5.84				-7.39				4.55			
cold mass displacement (due to repair)			-0.79				6.6				-0.74	
shiftet intercon. incl. CM-displacement	-5.84	(*)			0.00				-2.79			
shift of the magnetic origine			-4.79				13.6				-6.74	
Cryostat shift due to insulation vacuum			5.4				3.2				1.4	
Total shift in cold conditions			0.61				16.8				-5.34	
Difference magnetic position at cold					-16.2				22.14			

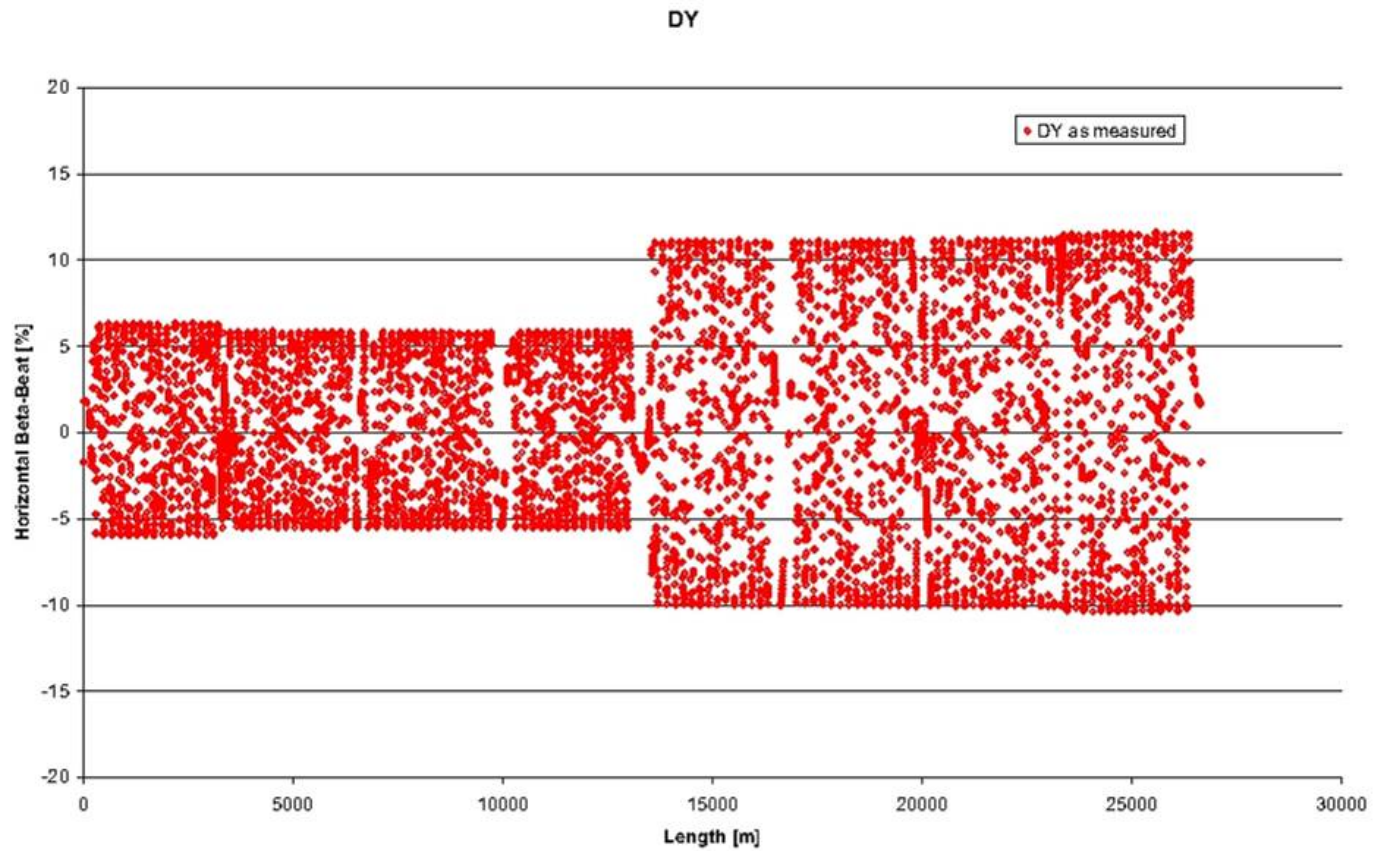
negative displacements are indicating a shift towards the IP
negative interconnections are indicating a too short interconnection

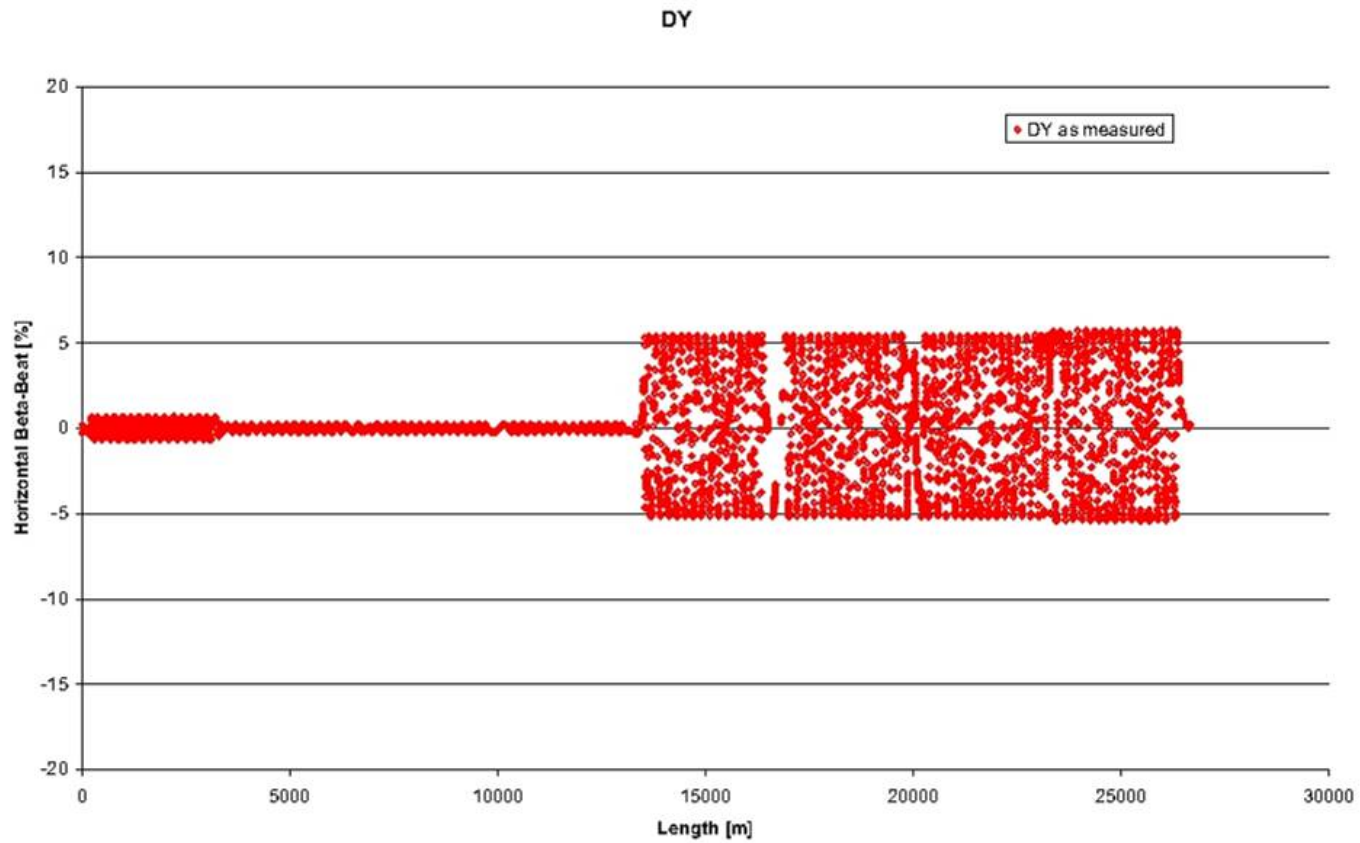
(*) IP flange of Q1 is rigid with the cryostat and doesn't move with the coldmass

IP5	HCLQXA_001-FL000005			HCLQXB_001-FL000003			HCLQXC_001-FL000007		
	I	IP side Q1R5	NIP side	I	IP side Q2R5	NIP side	I	IP side Q3R5	NIP side
Deviation of Beam Screen		-1.84	9.31		-9.08	-7.85		9.7	9.45
Interconnection default	-1.84			-18.39			17.55		
proposed shift		-7			0			0	
Interconnection with applied shift	-8.84			-11.39			17.55		
cold mass displacement (due to repair)		-0.79			6.6			-0.74	
shiftet intercon. incl. CM-displacement	-8.84 (*)		-4.00				10.21		
shift of the magnetic origine		-7.79			6.6			-0.74	
Cryostat shift due to insulation vacuum		5.4			3.2			1.4	
Total shift in cold conditions		-2.39			9.8			0.66	
Difference magnetic position at cold				-12.2			9.14		

negative displacements are indicating a shift towards the IP
 negative interconnections are indicating a too short interconnection

(*) IP flange of Q1 is rigid with the cryostat and doesn't move with the coldmass





How to deal with the situation

- Match the measured DY (→ **Stephane Fartoukh**)
- Check uncertainty 5mm RMS (→ **FS**)
- Influence on the Beta-Beating Effort (Measurements & Correction) (→ **Rogelio Tomás**)
- Any effect on the squeeze? (→ **Massimo Giovannozzi**)