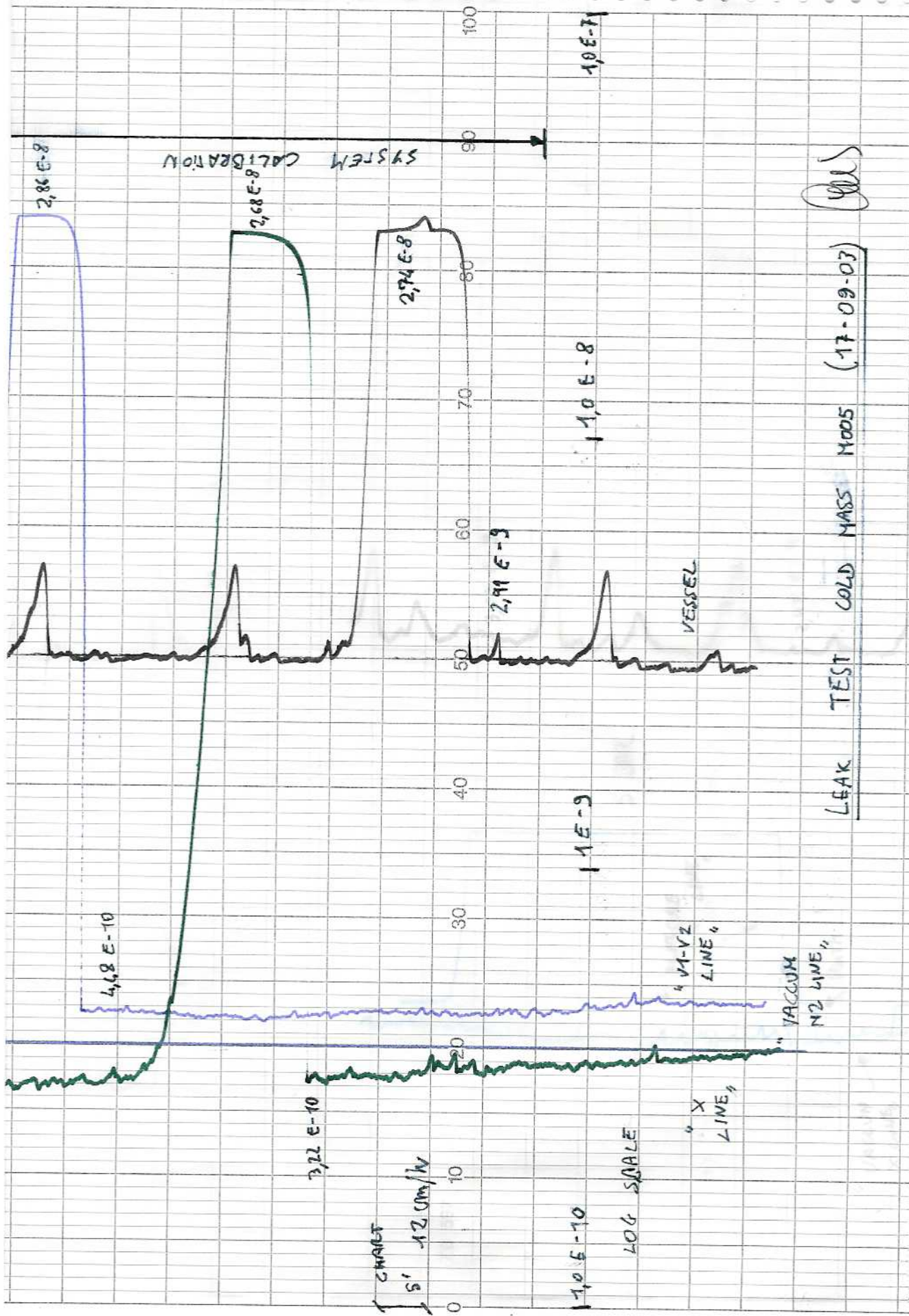
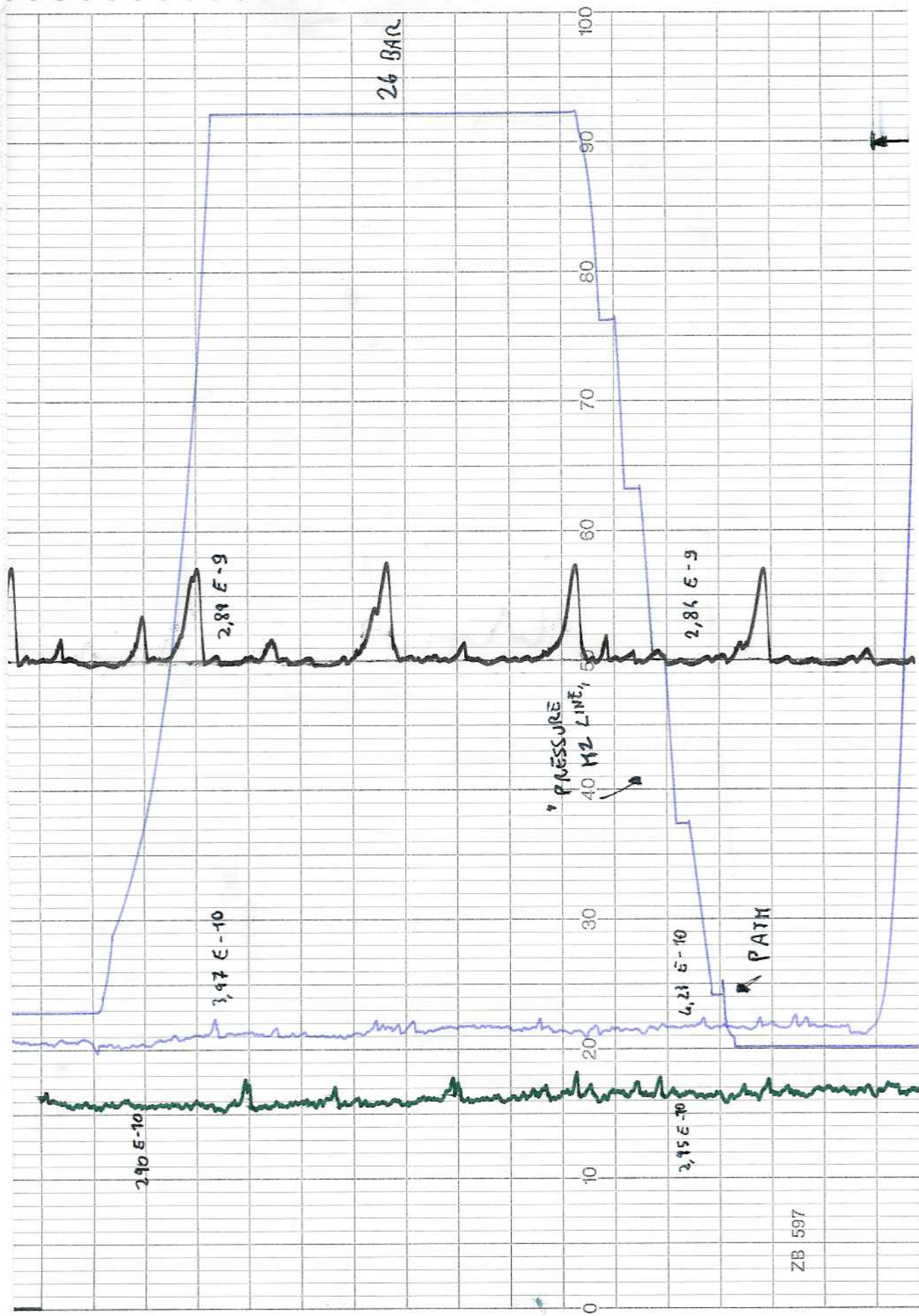


Cold Mass Nr. 2005		Step Nr. 1		Heat Exch -> Vacuum 4	
Volume / Volume to be tested CM -> Vacuum		CM -> Heat Exch. 3		Heat Exch -> Vacuum 4	
Fuga calibrata / Calibrated leak parameter					
Calibrated leak N°	4011007195	4011007225	4011007195	4011007195	4011007195
Data calibr. / calibration date	08/10/02	08/10/02	08/10/02	08/10/02	08/10/02
Temp. calibrazione fuga / Calibration Temp.	23,0 °C	23,0 °C	23,0 °C	23,0 °C	23,0 °C
Valore nom. fuga calibrata / Calibrated leak nom. value	3,00E-08 mbar l s-1	3,30E-08 mbar l s-1	3,00E-08 mbar l s-1	3,00E-08 mbar l s-1	3,00E-08 mbar l s-1
Calibrazione del sistema / System calibration					
Conc. He nelle linee di test (100%) / Volumetric fraction of tracer gas in the injection envelope					
T ambiente / Test temp.	18,0 °C	18,0 °C	18,0 °C	18,0 °C	18,0 °C
Fuga calibrata con correz. T ed età / Size of calib. leak after corr. for ageing and T)	2,48E-08 mbar l s-1	2,72E-08 mbar l s-1	2,48E-08 mbar l s-1	2,48E-08 mbar l s-1	2,48E-08 mbar l s-1
Segnale residuo prima delle misure di SFR / Residual signal prior SFR meas.	2,91E-09 mbar l s-1	4,48E-10 mbar l s-1	2,91E-09 mbar l s-1	2,91E-09 mbar l s-1	2,91E-09 mbar l s-1
Segnale del LD / Signal given by the calibrated leak	2,74E-08 mbar l s-1	2,68E-08 mbar l s-1	2,74E-08 mbar l s-1	2,74E-08 mbar l s-1	2,74E-08 mbar l s-1
Min. dev. segnale (=2x amp. segn. residuo) / Smallest read. signal dev. (= 2 x ampl. of RFR noise)	2,00E-11 mbar l s-1	2,00E-12 mbar l s-1	2,00E-11 mbar l s-1	2,00E-11 mbar l s-1	2,00E-11 mbar l s-1
Tempo di attesa stabiliz. segnale / Time to achieve stabilised leak signal	1400 sec	900 sec	1400 sec	1400 sec	1400 sec
SENSIBILITA' DEL TEST / Sensitivity of the leak test					
	S_n	S_{FR}	S_{FR}	S_{FR}	S_{FR}
	$2,02E-11$	$1,93E-12$	$2,02E-11$	$1,87E-12$	$2,02E-11$
	mbar l s-1	mbar l s-1	mbar l s-1	mbar l s-1	mbar l s-1
Condizioni del test / Leak test conditions					
Pressione del sistema / System pressure	P	7,90E-05 mbar	P	7,90E-05 mbar	P
Segnale residuo del ceratoghe ad inizio test / Residual signal prior to SF measurement	R _F	2,84E-09 mbar l s-1	R _F	2,95E-10 mbar l s-1	R _F
Segnale del LD a fine test / Signal given by the leak after 30 min. (>3)	S _F	2,89E-09 mbar l s-1	S _F	3,97E-10 mbar l s-1	S _F
CALCOLO DELLA FUGA / Leak evaluation	q _G	$5,05E-11$	q _G	$<1,0E-10$	q _G
		mbar l s-1		mbar l s-1	mbar l s-1
VALORE DI RIFERIMENTO / REF. VALUE (MAX)		1,0E-09 mbar l s-1 at 26 bar		1,0E-10 mbar l s-1 at 26 bar	
				1,0E-06 mbar l s-1 at 26 bar	
CONFORMANCE		YES	YES	YES	YES
Doc. di riferimento / Ref. documents					
CERN contract number: F302/LHC/LHC					
CERN technical spec.: LHC MMS-98-195 rev.2					
Leak test procedure (Ref. N° Revision): 780RM09442 rev.0					
Strumentazione / Test equipment					
Helium Mass Spectrometer type:					
Pressure gauge type:					
Pumping group:					
Prepared by: Name / Date		Caserza - 20/10/2003		on vessel PFEIFFER HLT 260	
Approved by: Name / Date		Terzi - 20/10/2003		on heat exchanger line PFEIFFER HLT 260	
Checked by: Name / Date		P. Gagliardi - 20/10/2003		on c.b.t. lines PFEIFFER HLT 260	
Checked at CERN by / Signature / Date				on heat exchanger line PFEIFFER HLT 260	
				on vessel PFEIFFER HLT 260	
				full range compact PFEIFFER PKR 251 turbo pump LEYBOLD PT 360 l/s	
				rotary vane pump PFEIFFER DUO 65 m3/h	
				rotary vane pump PFEIFFER DUO 20 m3/h	
				rotary vane pump PFEIFFER DUO 20 m3/h	
				rotary vane pump PFEIFFER DUO 65 m3/h	
Note / Remarks					
Test performed after welding of flange (Ø100) the capillary tube cold head, installed on the cold mass					





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