JCT
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bergoz

Instrumentation

Certificate of Calibration

Instrument type :	**Integrating Current Transformer**
Serial number :	**# 2389**
Options installed :	**20:1 turns ratio**
Calibration date :	**October 22, 2010**

At the time of manufacture, this certifies that the above instrument was calibrated in accordance with applicable Bergoz Instrumentation procedures.

At periodic intervals, Bergoz Instrumentation measurement standards are calibrated by comparison to or measurement against transfer standards traceable to national standards, natural physical constants, consensus standards, or by-ratio type measurements using self-calibrating techniques.

National standards are administered by IRMM, the European Institute for Reference Materials and Measurements, NIST, the U.S National Institute of Standards and Technology or other national standards laboratories.

At the time of shipment, the referenced instrument met its published operating specifications within the operating specifications of the instrument and the standards.

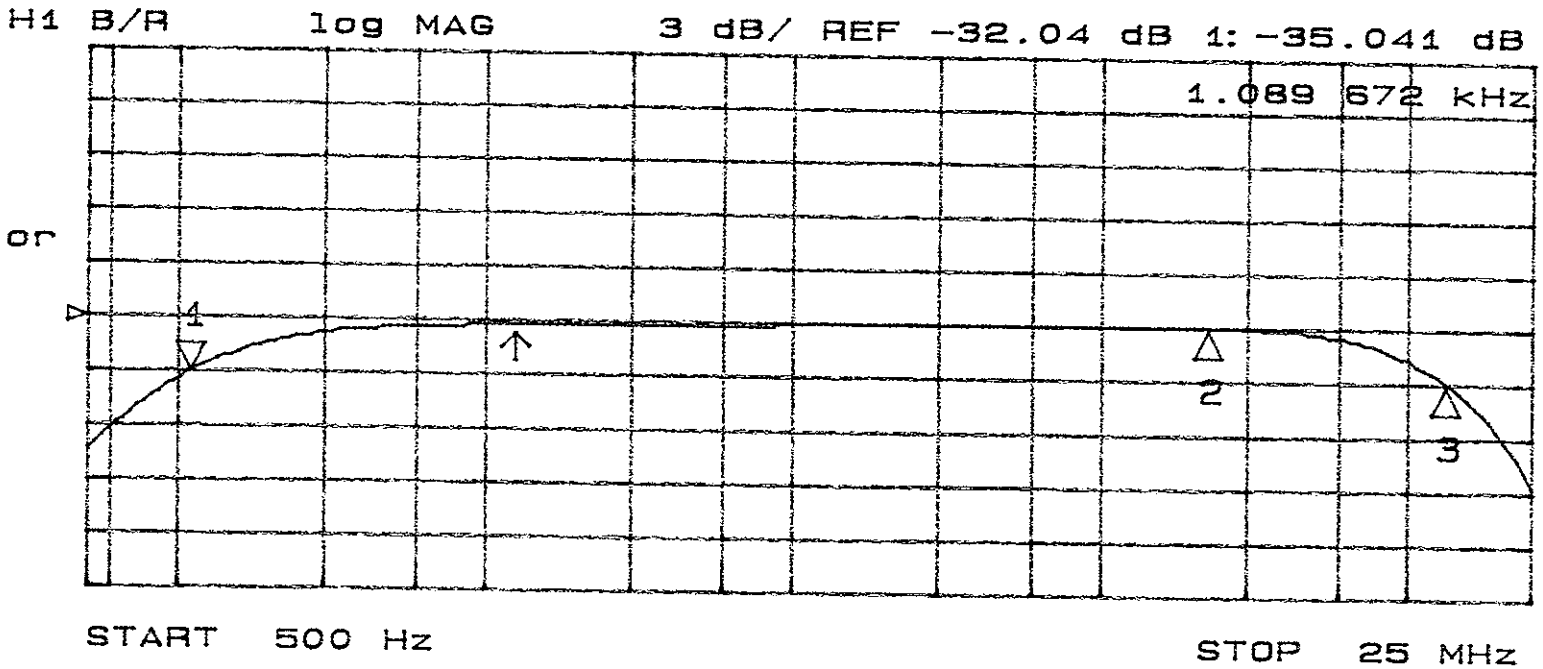
Supportive documentation relative to traceability is on file and is available for examination upon request.

Hervé Bayle

Supervisor in charge

Attached documents:

Frequency response plot
Input pulse plot
Output pulse plot
Pulse integration plot
Residual gas analysis
Vacuum certificate



STIMULUS val

1.089 672 kHz	-35.041 dB
2.2 MHz	-32.040 dB
13.203 855 973 MHz	-35.034 dB

Model: ICT-CF6"3/4-60.4-UHV-070-20:1	
Sensor serial Nr.:	2389
Plot:	Frequency response
Date:	October 22, 2010

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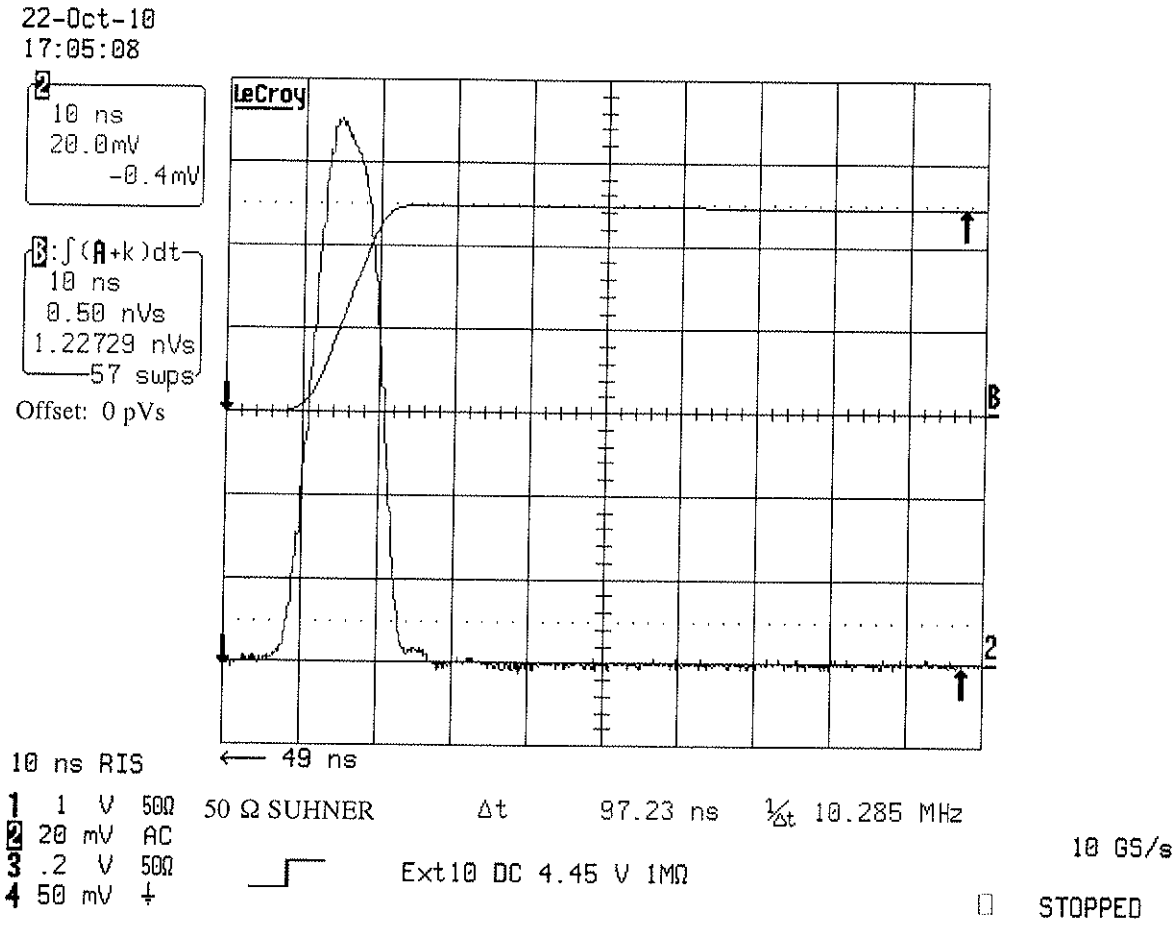
Fax: +33-450.426.643
Instrumentation

Instrument used:

HP8751A Network analyser

ICT 2

Model: ICT-CF6"3/4-60.4-UHV-070-20:1	
Sensor serial Nr.:	2389
Plot:	Intput Pulse
Date:	October 22, 2010
01630 St Genis-Pouilly, France Tel: +33-450.426.642 Fax: +33-450.426.643	bergoz Instrumentation



Input pulse measurement

Instruments used:

- Lecroy LT584 1GHz Oscilloscope
- HP 8112A 50MHz Pulse generator

$\int Udt = 1.227$ nVs

Attenuation -32.2 dB Ratio 0,02455

$$Q\ in = \frac{\int Udt}{50\Omega} \times \frac{1}{0{,}02455}$$

Q in = 1nC

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Model: ICT-CF6"3/4-60.4-UHV-070-20:1	
Sensor serial Nr.:	2389
Plot:	Output Pulse
Date:	October 22, 2010

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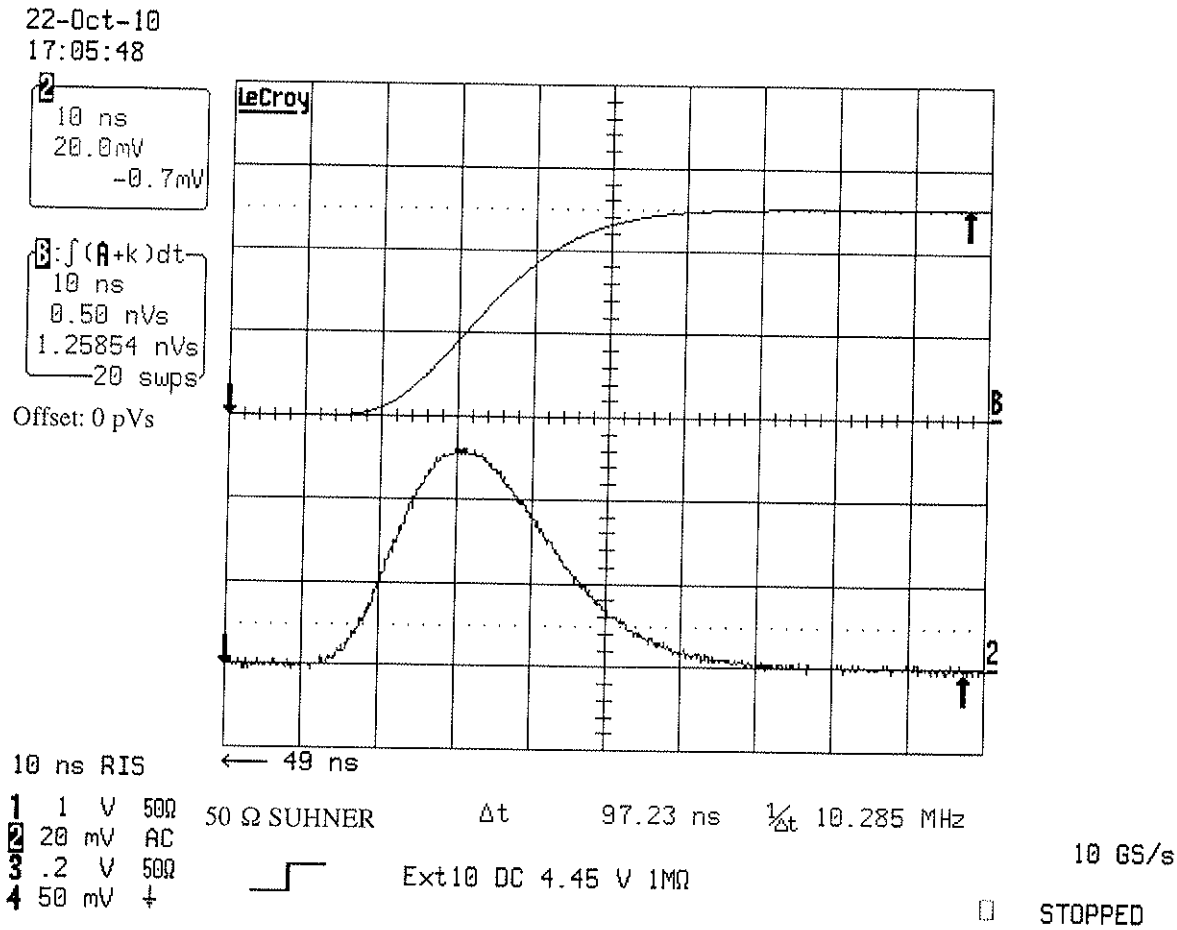

Charge ratio error calculus

$\int Udt = 1.258$ nVs

$$Q\ out = \frac{\int Udt}{50\Omega} = 25.16\ pC$$

Theoretical ICT ratio = 0.025

$$\frac{Q\ out}{Q\ in} = 25.16 / 1000$$

$$= 0{,}02516$$

Instruments used:

- Lecroy LT584 1GHz Oscilloscope
- HP 8112A 50MHz Pulse generator

ICT
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Model: ICT-CF6"3/4-60.4-UHV-070-20:1	
Sensor serial Nr.:	2389
Plot:	Pulse integration
Date:	October 22, 2010

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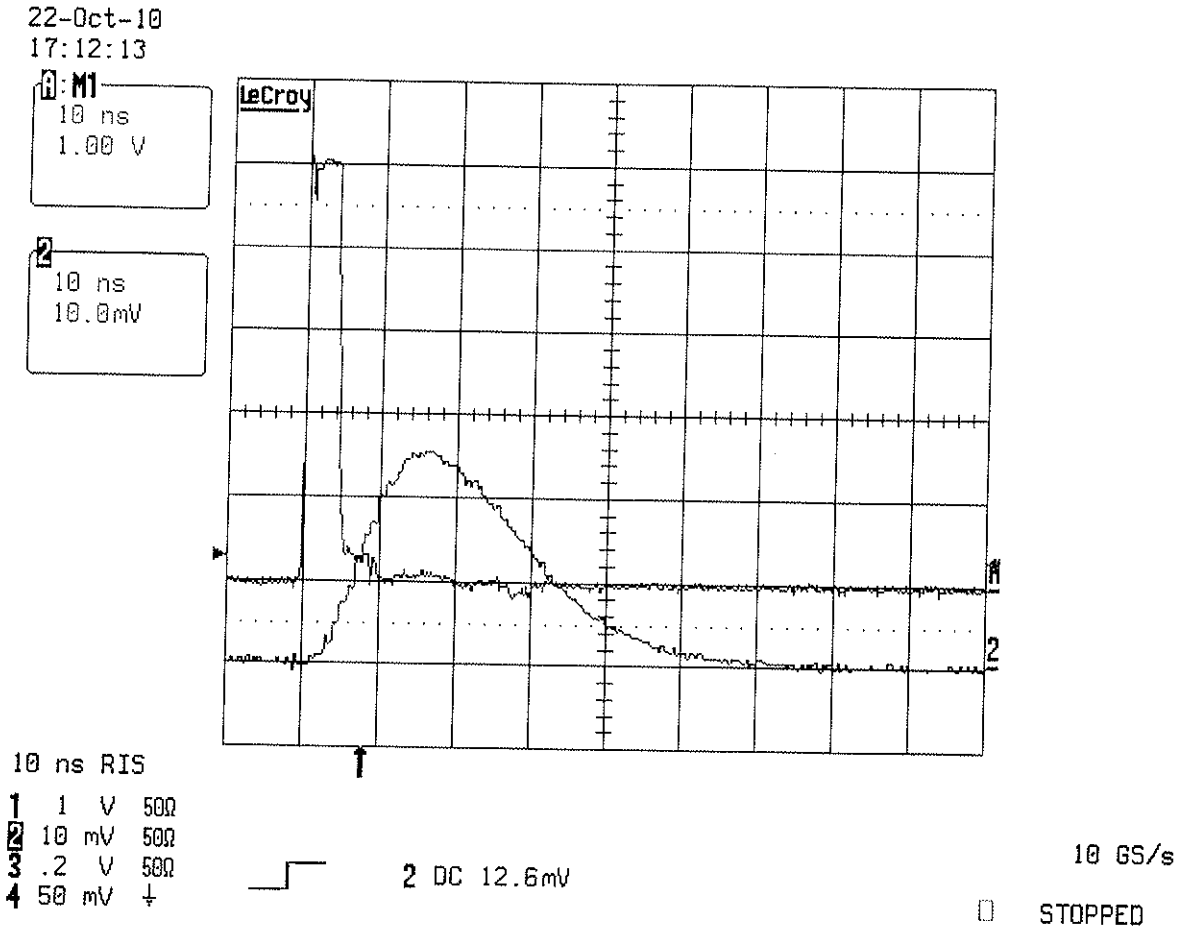
Instrumentation



Instruments used:

- Lecroy LT584 1GHz Oscilloscope
- Pulse generator TEK Type 109

Model:	ICT-CF6"3/4-60.4-UHV-070-20:1
Sensor serial Nr.:	2389
Plot:	Residual Gas Analysis
Date:	October 22, 2010

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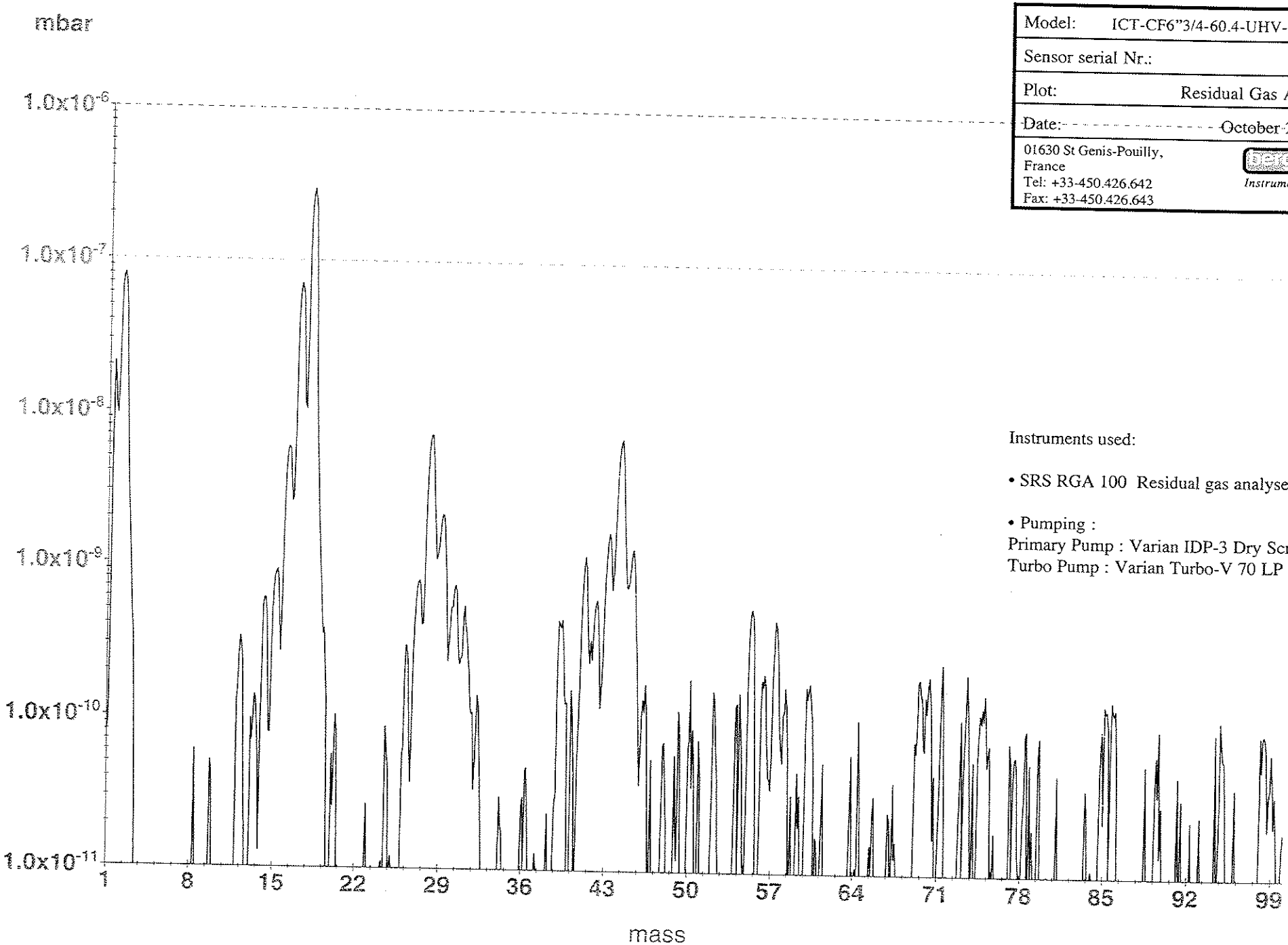
Instrumentation



Instruments used:

- SRS RGA 100 Residual gas analyser
- Pumping :

Primary Pump : Varian IDP-3 Dry Scroll Pump
Turbo Pump : Varian Turbo-V 70 LP - 70 l/s

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Instrumentation

Vacuum Certificate

Instrument model :	**ICT-CF6"3/4-60.4-UHV-070-20:1**
Serial number :	**#2389**
Leak test date :	**October 22, 2010**

The instrument was leak-tested with helium.
Any potential leak would be detected by the residual gas anaylzer set on 4He detection.
The result of this test allows us to guarantee:

Leak rate < 1.0 E-8 mbar.l/s

Instruments used:

- SRS RGA 100 Residual gas analyser
- Primary Pump : Varian IDP-3 Dry Scroll Pump
- Turbo Pump : Varian Turbo-V 70 LP - 70 l/s

Hervé Bayle

Supervisor in charge