Cards of typical signatures Reinhausen

Cette version est une version préliminaire et temporaire pour **diffusion très limitée**.
Cette version fait référence au logiciel DIAC dont le développement est arrêté par Hydro-Québec.

Le logiciel OpenZen - Zensol (issu de nos logiciels existants CbaWin, GenWin, CbvWin, etc., copyright 1992 à 2009) remplacera DIAC totalement à court terme.

Il sera donc nécessaire de réviser et de corriger cette version, en supprimant notamment toutes les références à DIAC et en les remplaçant par les références équivalentes à OpenZen.

Merci de me contacter directement pour tout commentaire (bon ou mauvais), toute nouvelle idée, ainsi que toute suggestion d'amelioration de ce document ou du logiciel OpenZen et ces documents associés, dans le but ultime de l'obtention d'un logiciel et d'une documentation claire et pratique pour vous et tous nos utilisateurs. Tous vos retours d'information seront très appréciées.
Vous remerciant par avance pour votre collaboration,

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This version is a draft and temporary version for **limited distribution ONLY**.
This version refers to DIAC software whose development by Hydro-Québec is stopped.

The OpenZen – Zensol software (based on our existing softwares CbaWin, GenWin, CbvWin, etc., copyright 1992-2009) will completely replace DIAC in the short term.

This version needs to be reviewed and corrected by Tap-Changer specialists. Among other things, all references to DIAC software will be replaced by their equivalents in the OpenZen Software.

Text in red requires special attention and will be corrected.
If you want the original version of this text, please download the French document.

Please do not hesitate to contact me directly for any comment (good or bad), any new idea, or any suggestion regarding the improvement of this document or the improvement of the OpenZen software and any of its related documents, in order to ultimately obtain clear and useful documentations for you and all of our users. All of your feedbacks will be appreciated.
Thank you for your cooperation.

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Cards of typical signatures
Reinhausen

Table 1: Features

Features of the family			
Motor	1. Single phase 2. Three phase	**Drive**	With springs
Brake	1. Mechanical 2. At DC current injection thru capacitor 3. At DC current injection thru diode	**Types of mechanisms**	1. MA4 2. MA7 3. MA7/8 4. MA9 5. ED
		Number of OLTP	1
		Number of phases	3

Section I : Typical complete signatures

1. Single Operation

The single operation is a movement upwards or downwards of the selector, followed by a transfer of the load through the switch. The operation of the selector is silent on all Reinhausen models with exception of the M model, as shown in the **Figure 2**.
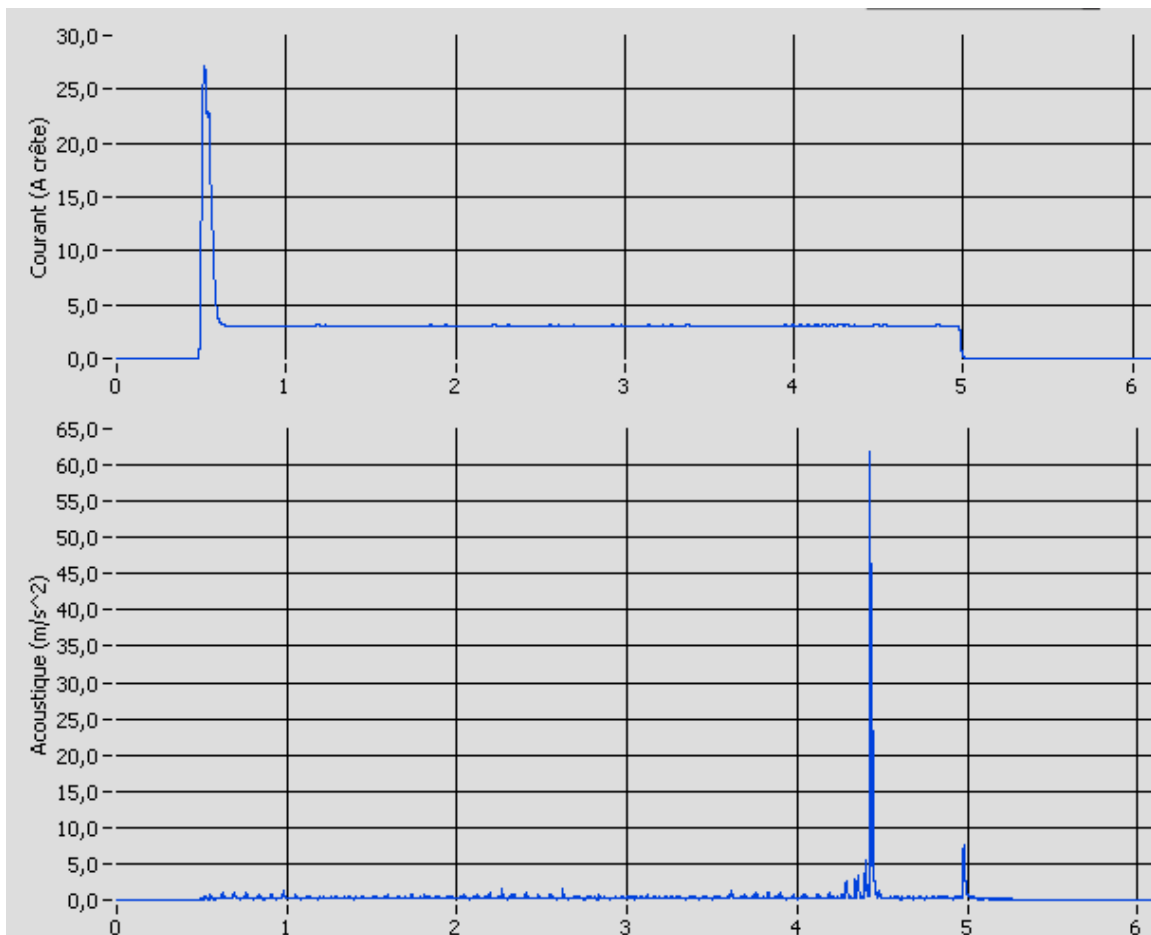
**Figure 1 :** Single operation upwards of a Reinhausen C (tap +-5)

The selector of the M type tap changer is very noisy, as seen on the signature below.
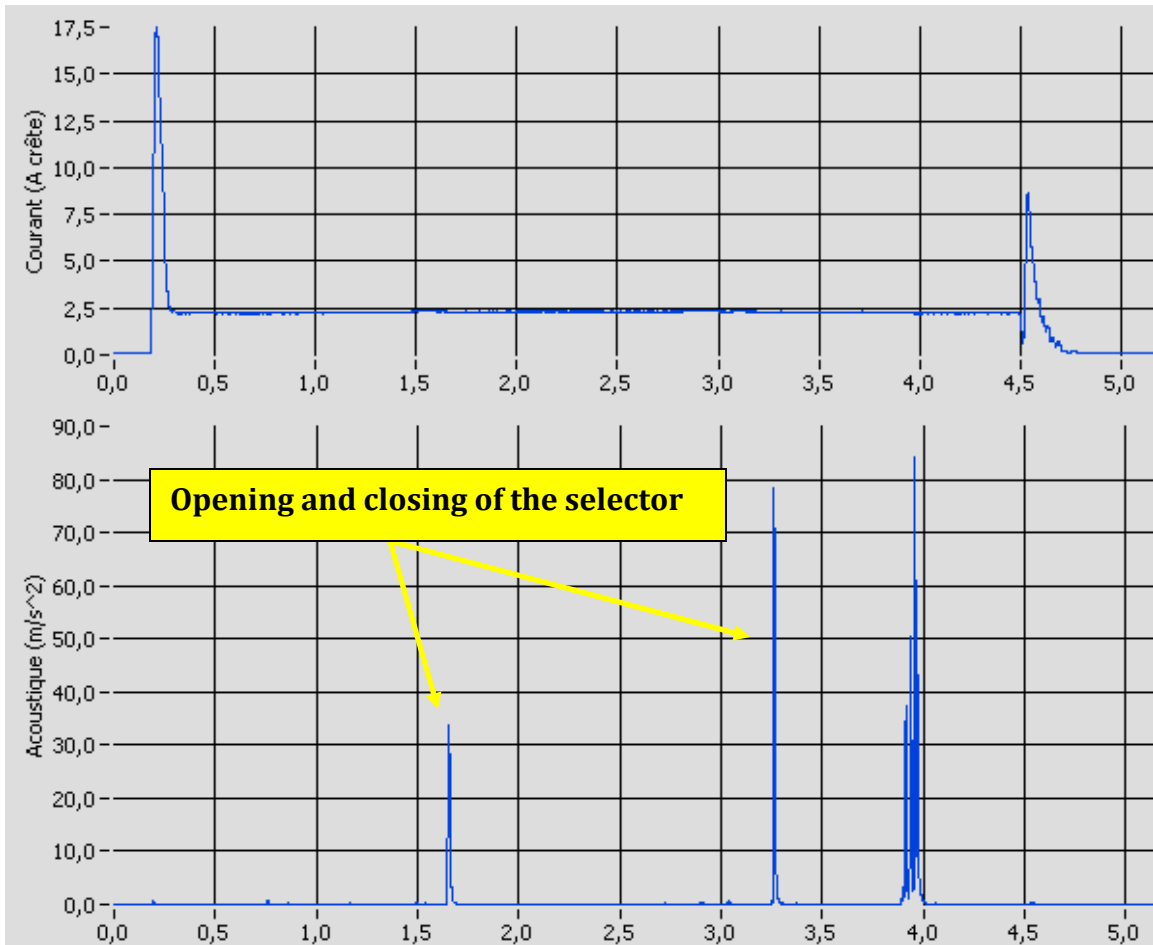
Figure 2 : Single operation upwards of a Reinhausen M (tap +8)

2. Dual Operation (operation of the inverter)

The tap changer can access a second range of positions through the inverter. During the operation of the inverter, two switch operations are performed one after another, as shown on the acoustic signature below. Again, the operation of the selector is silent on all models except the M type.
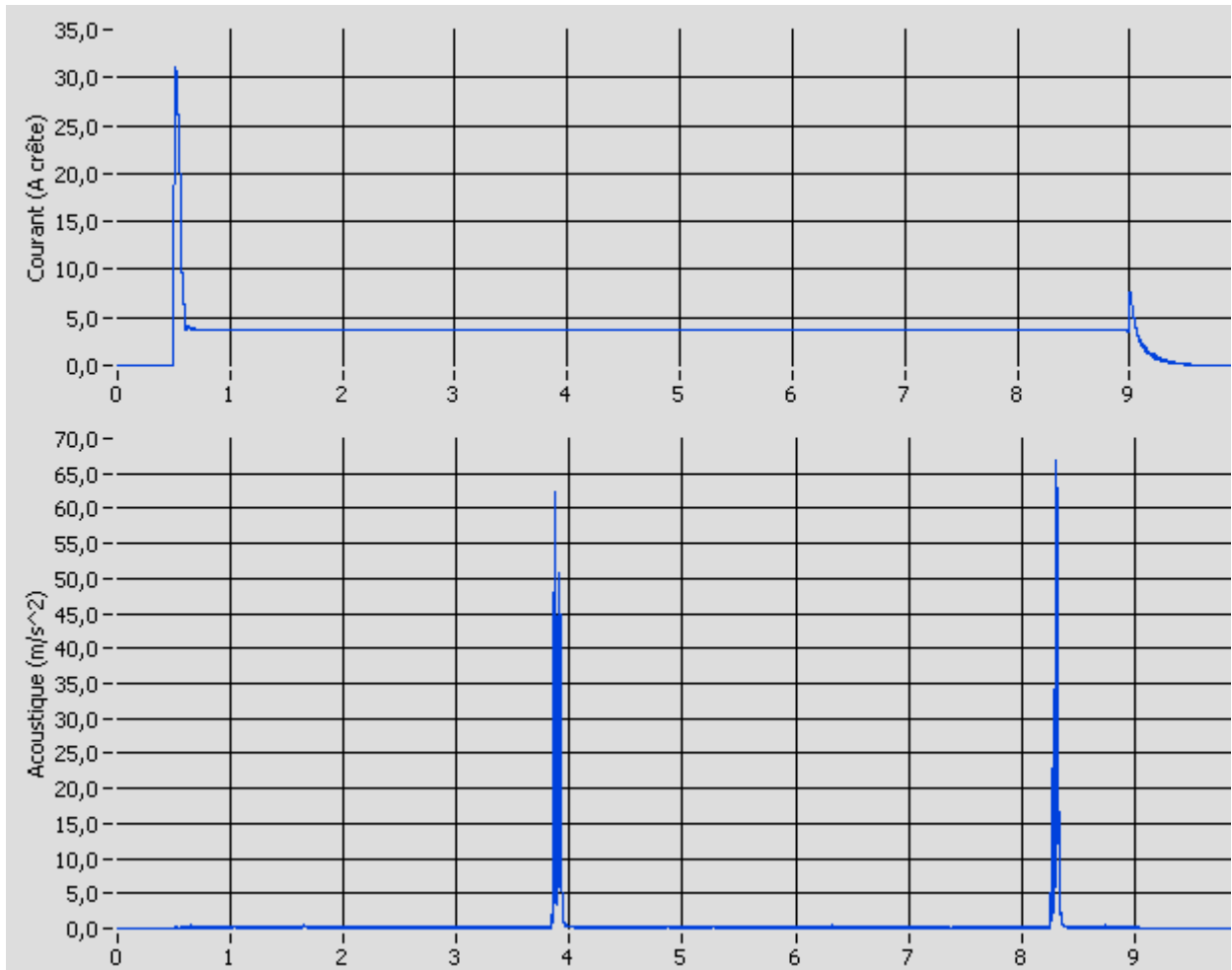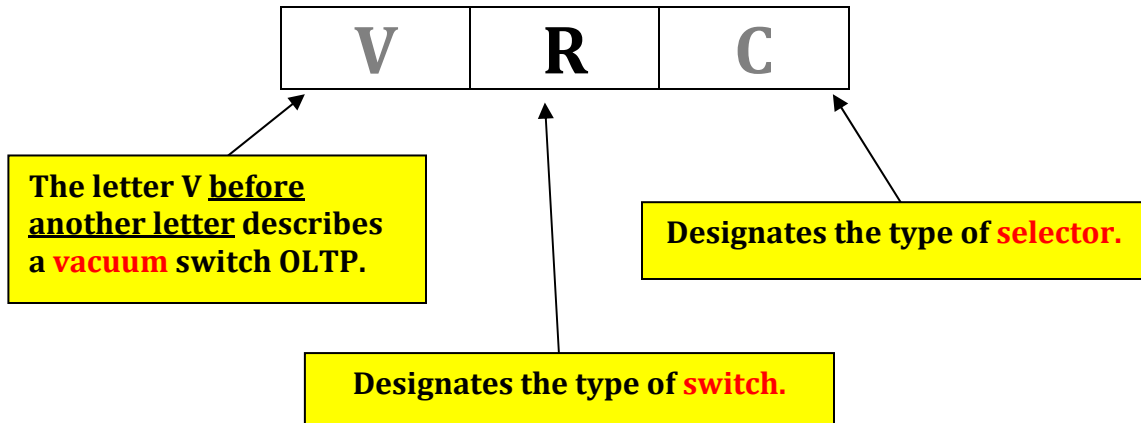

Figure 3 : Operation of the inverter for a Reinhausen M (tap -9)
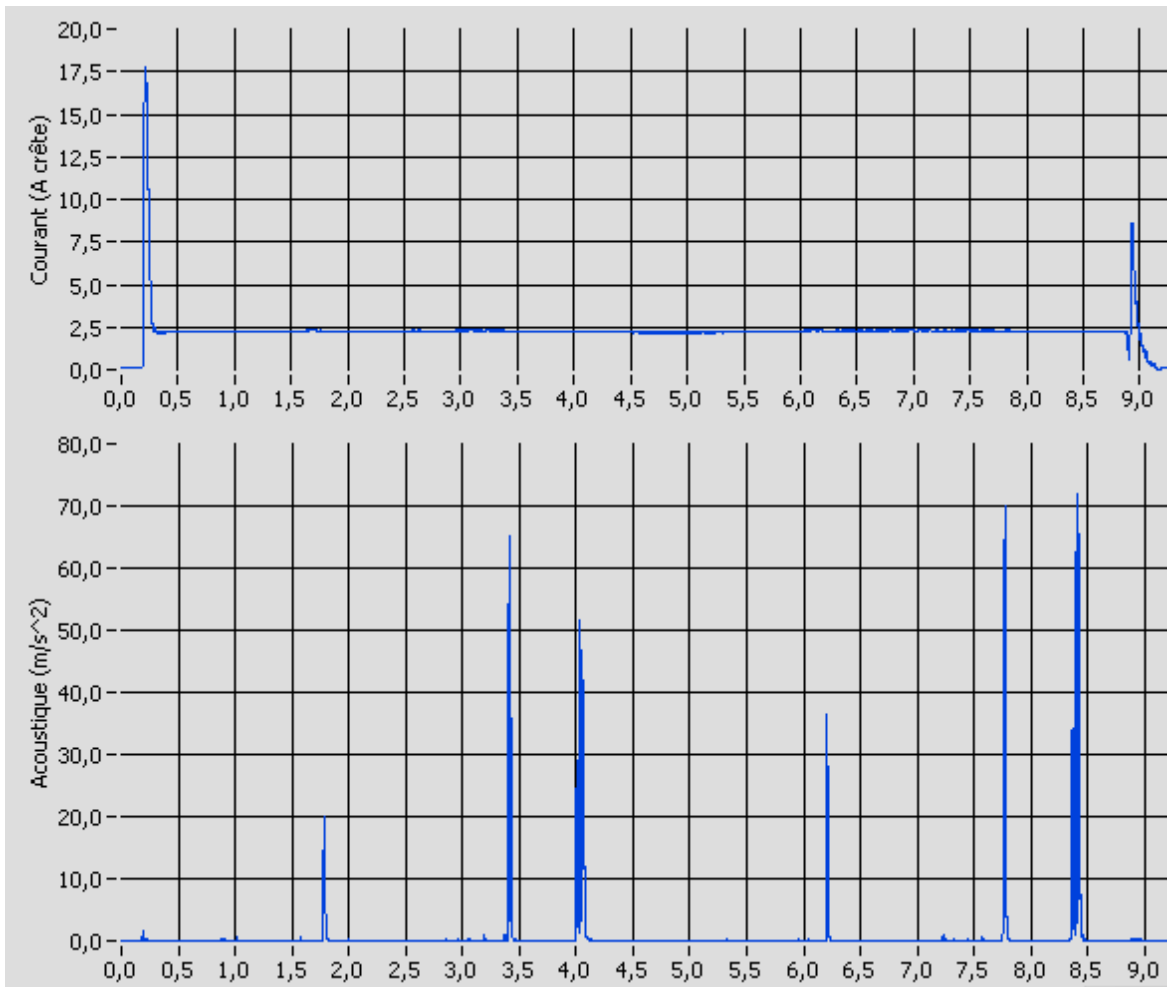
Figure 4 : Operation of the inverter for a Reinhausen M (tap -9)

NOTE : Nomenclature

All the tap changers type Reinhausen follow a consistent nomenclature. Usually, the OLTP types are named with a single letter, as Reinhausen C. In this case, the OLTP is fully of type C, that is to say that the selector and the switch are of the same type. Where several letters designate a OLTP, the rule to follow is described below :

V	R	C

The letter V before another letter describes a vacuum switch OLTP.

Designates the type of selector.

Designates the type of switch.

Section II : Typical switchings

Reinhausen C
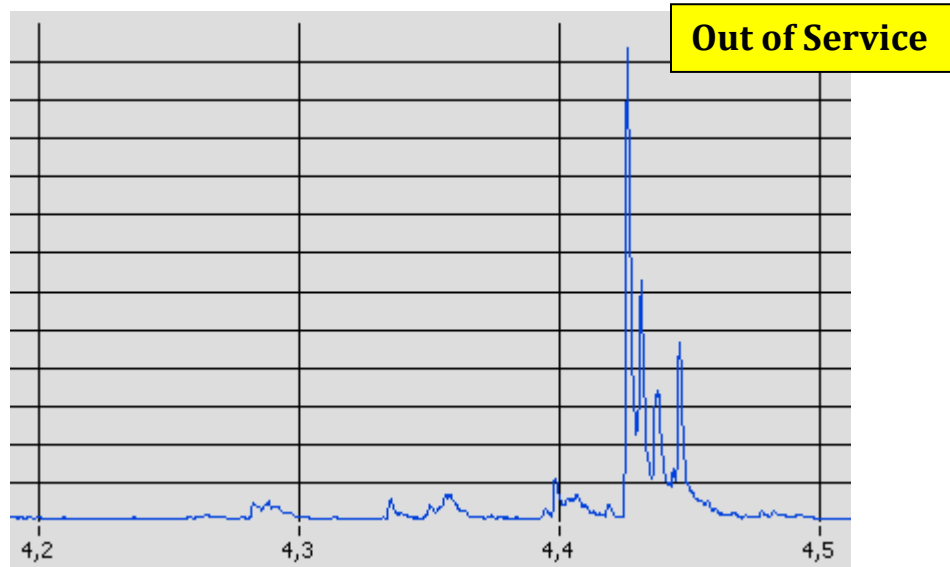
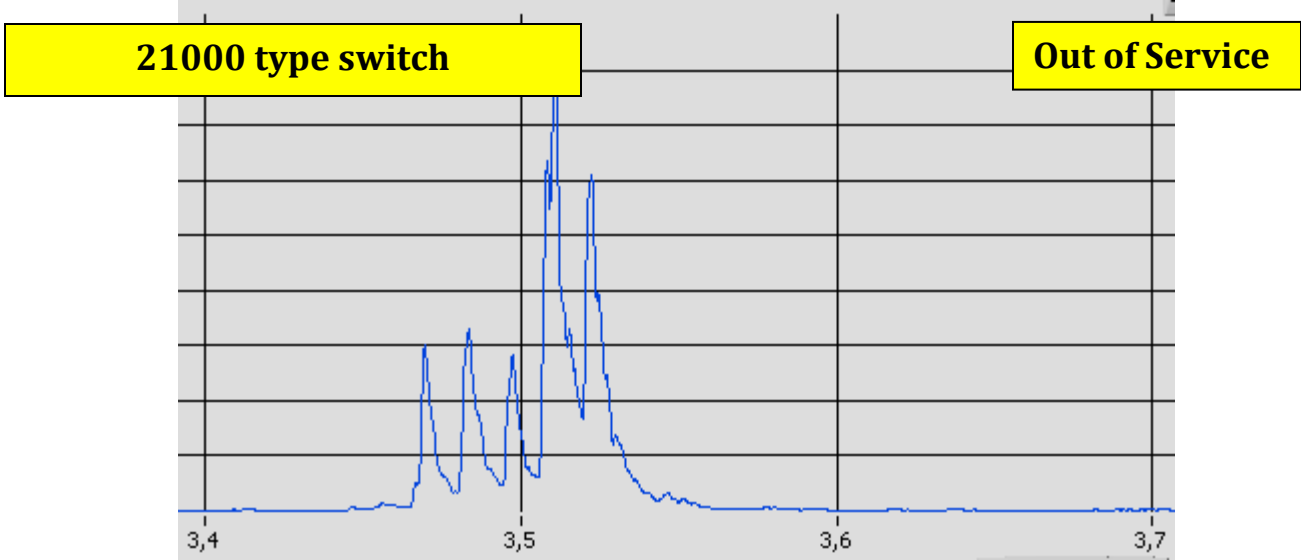**Figure 5 :** Reinhausen C switching at tap +-5 in mode **Out of Service**

Reinhausen D

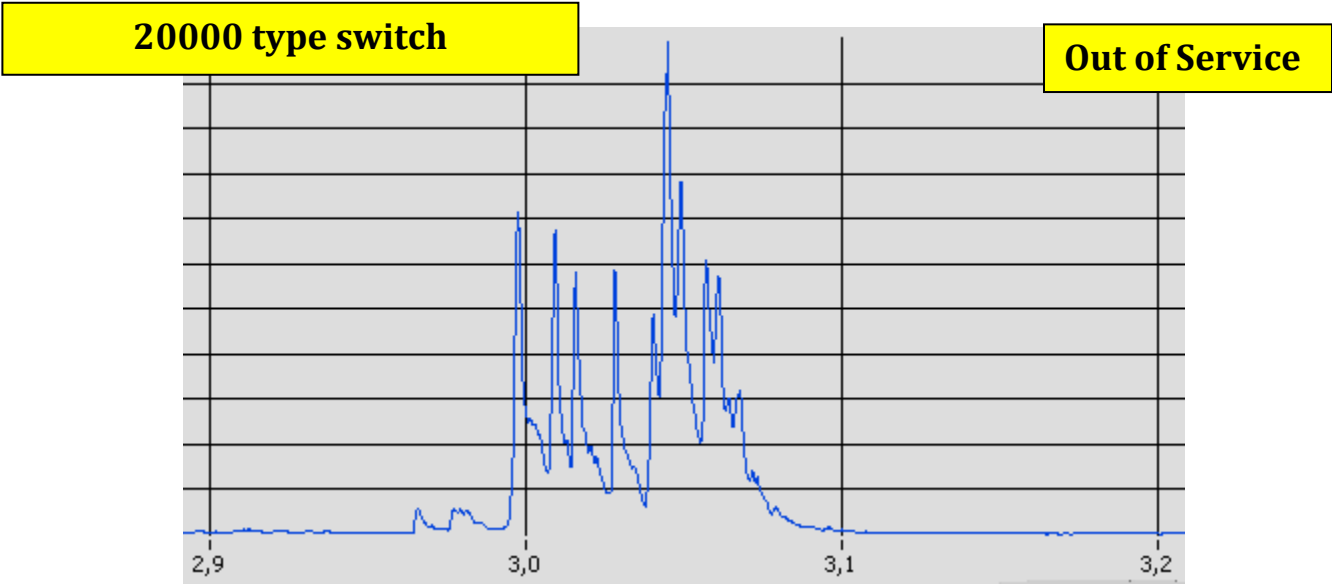The Reinhausen type D can have three different types of switches, namely :

- ✓ LU D0466
- ✓ LU D20000
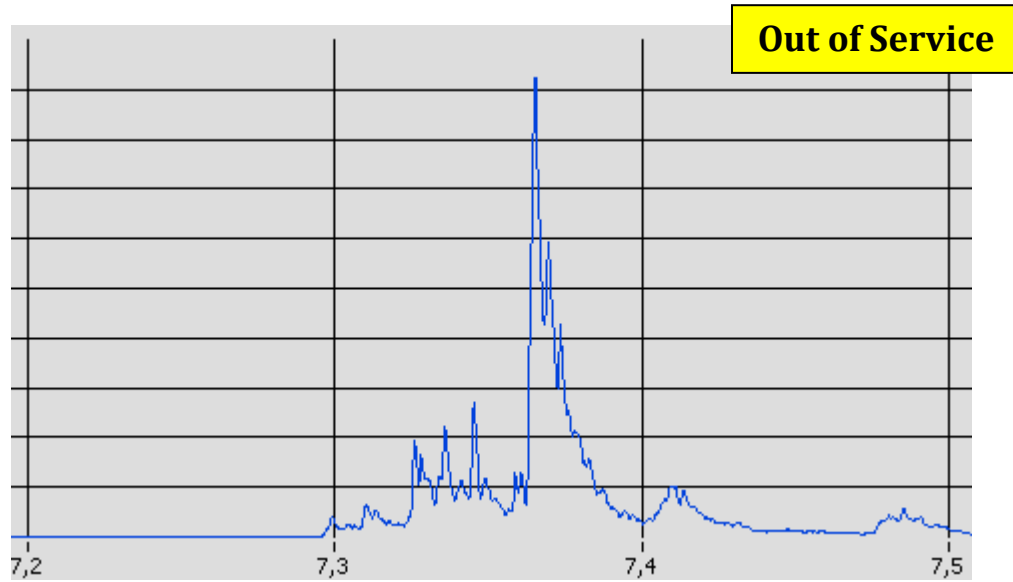- ✓ LU D21000

Type 0466 switch
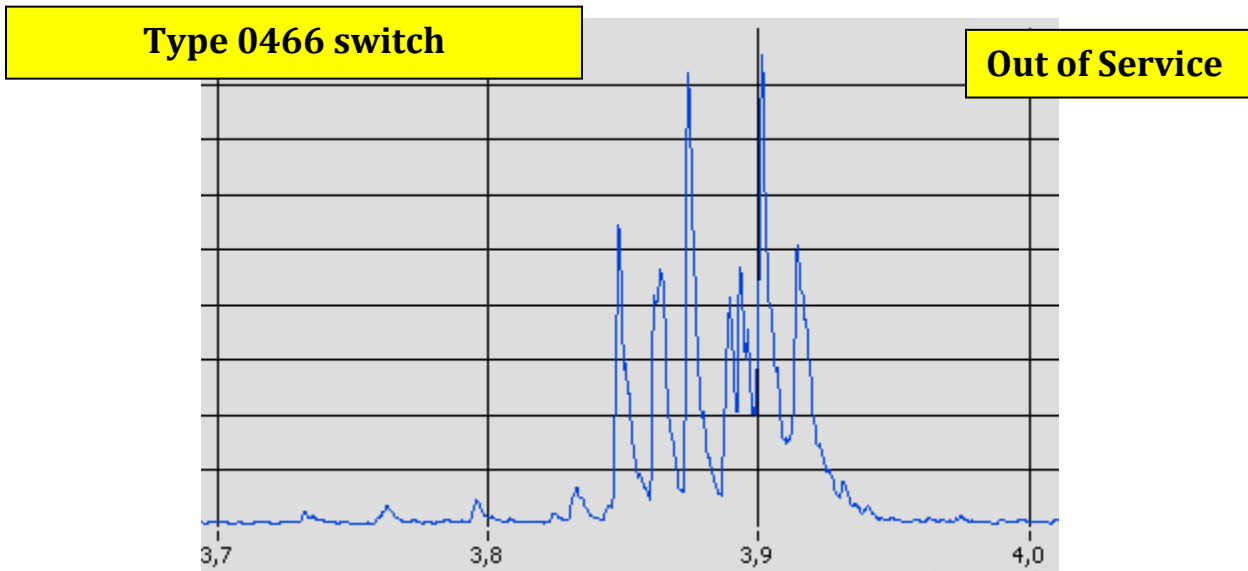
Out of Service

Figure 6 : Reinhausen D switching with a LU D0466 switch
at tap -11 in mode **Out of Service**

Figure 7 : Reinhausen D switching with a LU D21000 switch
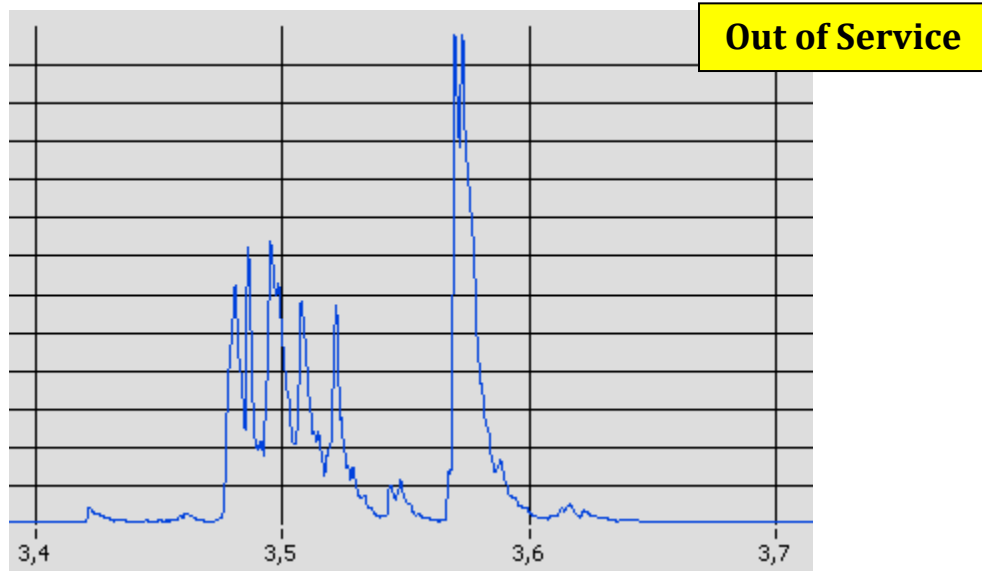at tap +6 in mode **Out of Service**

Figure 8 : Reinhausen D switching with a LU D20000 switch
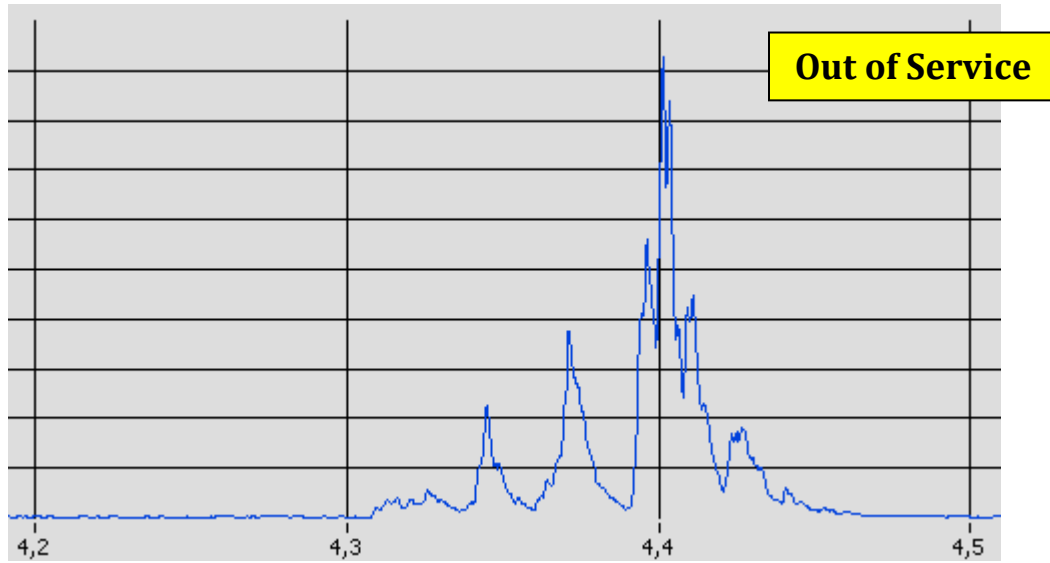at tap +11 in mode **Out of Service**

Reinhausen E

Figure 9 : Reinhausen E switching at tap +13 in mode **Out of Service**
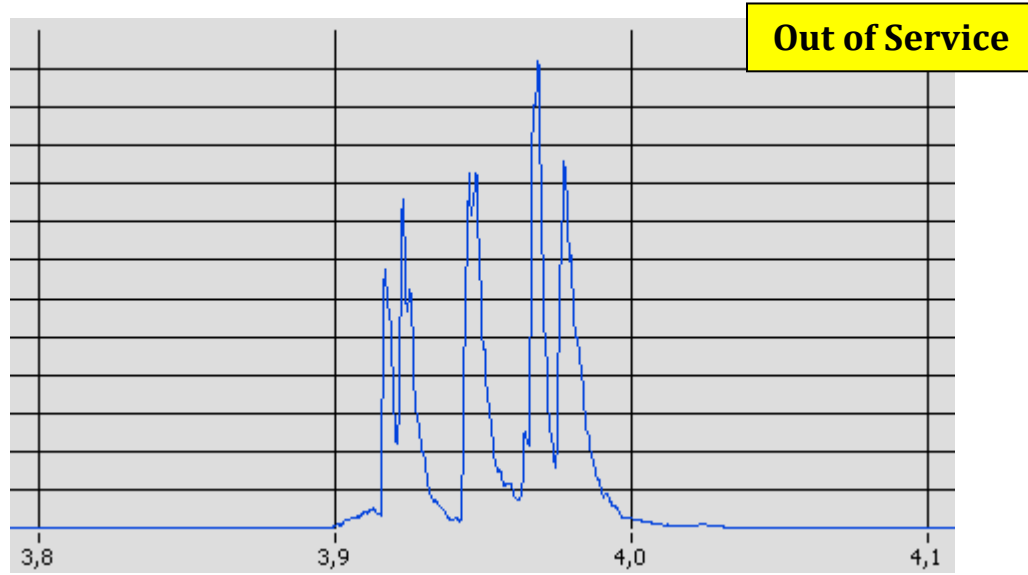
Reinhausen F

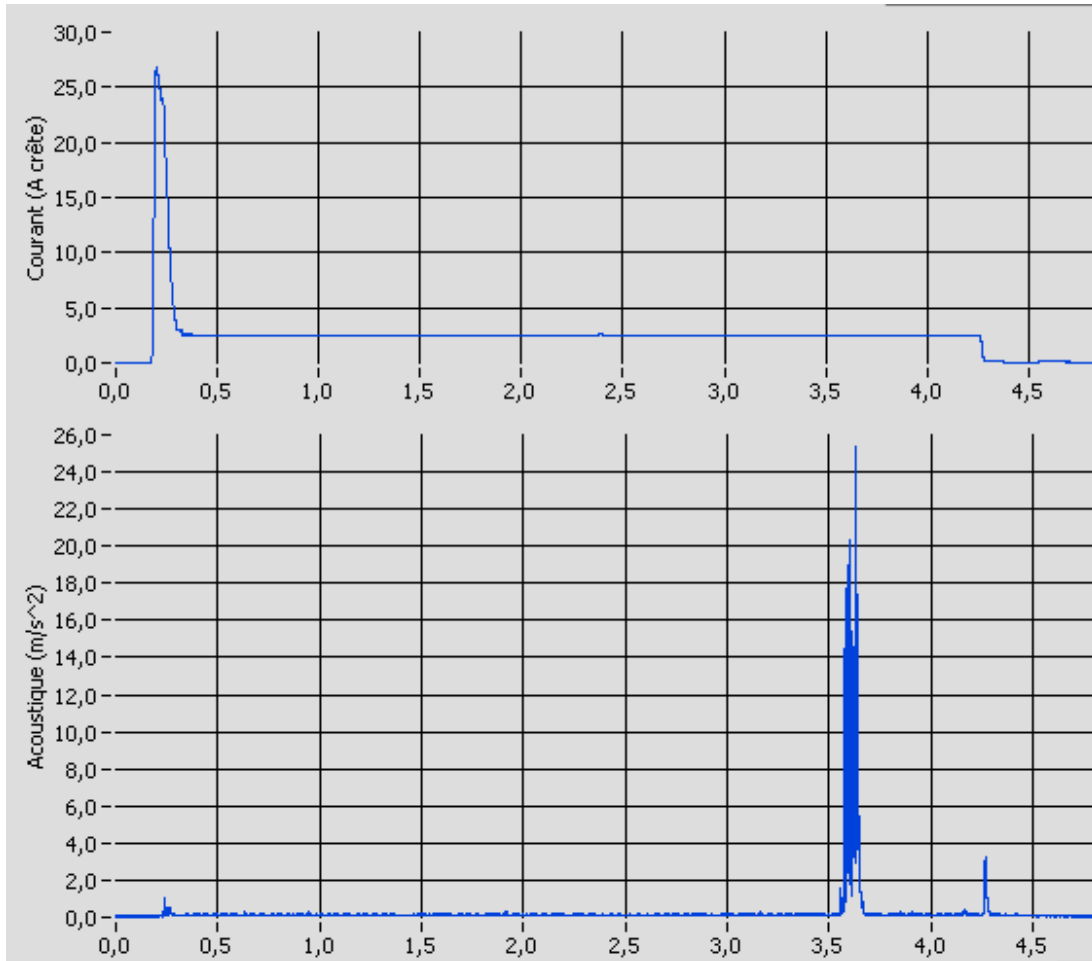**Figure 10 :** Reinhausen F switching at tap -11 in mode **Out of Service**

Reinhausen G

Figure 11 : Reinhausen G switching at tap 7 in mode **Out of Service**

Reinhausen M and MS (M type switch)

Out of Service

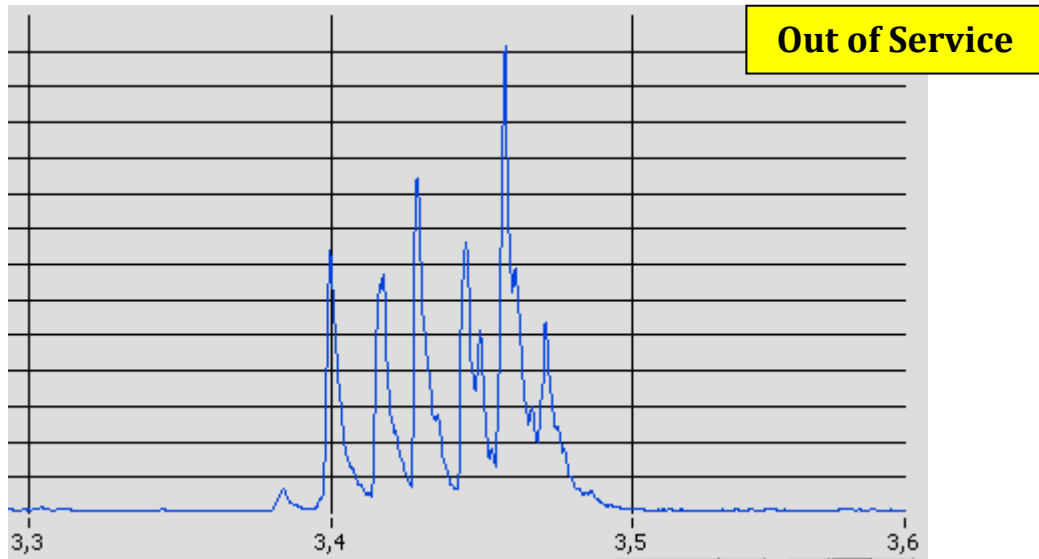**Figure 12 :** Reinhausen M switching at tap +14 in mode **Out of Service**

Section III : Tap changers with vacuum switches Reinhausen VR

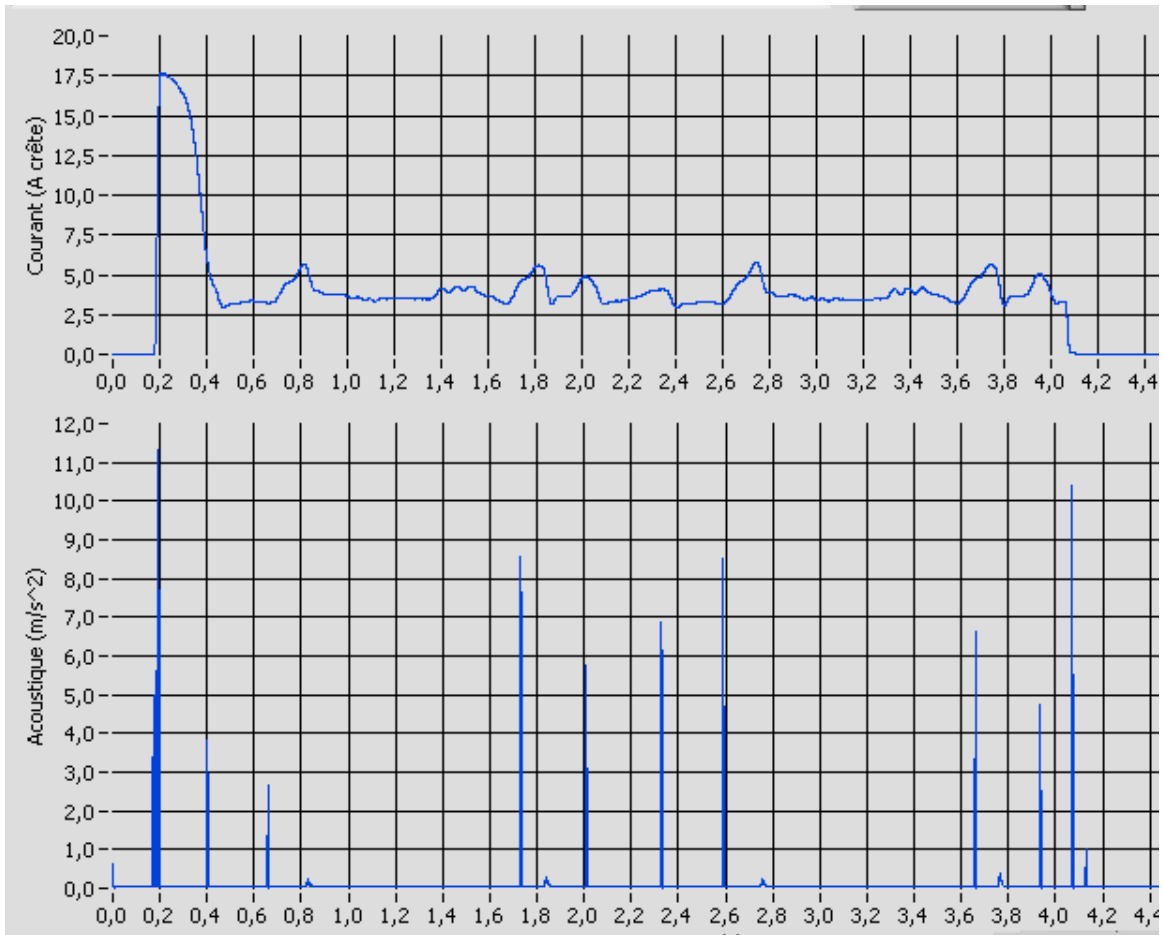**Figure 13 :** Single operation upwards of a Reinhausen VR (tap +16)

Typical switching

Figure 14 : Reinhausen VR switching at tap +15 in mode **Out of Service**

Reinhausen RMV-II

Figure 15 : Single operation upwards of a Reinhausen RMV-II (tap -11)