Calibre identification sheet for movements with Spring-balance oscillator

Author(s): Andreas Wyss

Level zone:	Revision:	Release / Visa:
FM-AD	02	26.10.2018/AWY

Category

Please tick the category of the calibre to be submitted in the list below and for categories I and II the corresponding class.

I : Wristwatch with balance spring oscillator ☐ Category > 20 mm ☐ ≤ 20 mm ☐

II : Pocket watch with balance spring oscillator ☐ Lépine ☐ Savonnette ☐

III : Timepieces in fixed position with balance-spring oscillator ☐

Movement manufacturer	
Manufacturer reference	
Calibre number of the submitted movements	
Chronograph present	Yes ☐ No ☐
Alternations [A/h]	
Maximum winding torque [mNm]	
Minimum winding torque [mNm]	
Movement fitting diameter [mm]	
Frequency [Hz]	
Movement height [mm]	
Number of winding revolutions on day 1 (0 to max)	
Number of winding revolutions on the next days (24h to max)	
Special features to be indicated on the individual A4 sheets or 3 parts certificate (maximum 3 lines of 40 characters each)	
Position of the crown in relation to the 12H final dial	3H ☐ 6H ☐ 9H ☐ 12H ☐ Other:
Manual winding	Yes ☐ No ☐
Power reserve [h]	
Winding direction	Clockwise ☐ anti-clockwise ☐
Winding system (Maximum torque: 25 mNm)	Sliding brace ☐ applied torque: 25 mNm End Stop ☐
Maximum winding speed [rpm]	
Auxiliary devices	
Date and signature of the manufacturer:	Comments:

COSC	**Calibre identification sheet for movements with quartz oscillator**		
	Author(s): Andreas Wyss		
	Level zone:	**Revision:**	**Release / Visa:**
	FM-AD	01	20.07.2017/AWY

Movement manufacturer	
Manufacturer reference	
Calibre number submitted to COSC	
Digital display	☐ If yes, please join an implemantation plan of the segments
Amplitude at the beginning of the motor impulse [V] (only for analogue displays)	
Maximum amplitude of the motor impulse [V] (only for analogue displays)	
Movement fitting diameter [mm]	
Movement height [mm]	
Special features to be indicated on the individual A4 sheets and 3 parts certificate (maximum 3 lines of 40 characters each)	
Specialities (inhibition enslavement, other)	☐ If yes, please join a description with the numbering of the influences in [ms]
Date and signature of the manufacturer:	Comments:

Notes: The manufacturer of the movement or the submitter is obliged to ensure the following:

- Verify that the static deviation of the movements must be less than ± 0.4 s/d for 20 days.
- The oscillator must be powered by a voltage regulator.

COSC	**Delivery note**		
	Author(s): Andreas Wyss		
	Level zone:	**Revision:**	**Release / Visa:**
	FM-AD	00	15.02.2016/AWY

Place of submission: _____

Brand [1]: _____

Date of submission of copies [3]: _____

Debtor: _____

No. of 1st copy: _____

Submitter [2]:

No. of the last item: _____

Customer reference: _____

Quantity: _____

Second Customer Reference: _____

No of submitted Calibre: _____

Comments: _____

_____

[1]: Brand visible on the finished watch

[2]: Customer who physically submits the movements to COSC.

[3]: Date on which the items are physically submitted to the selected testing office.

Individual COSC documents to be provided:

☐ with the brand logo

☐ A4 sheet ☐ 3 parts certificate ☐ Certificate

☐ label of failure

Movements number:

The undersigned confirms that the movements meet the criteria for the designation "Swiss made" within the meaning of the Ordinance on the Use of the «Swiss» Name for Watches (SR 232.119).

Place and date: _____ Signature and stamp:

Table of contents:

1. Purpose and subject

The purpose of this instruction is to define and explain the method of use of the motor pulse capture device for time measuring devices with quartz oscillator (CarQua).

2. Scope of application

Category IV time measuring devices with analogue display.

3. Reference documents

[R1] FM-AD Identification Sheet_Quartz

4. Abbreviations and explanations of terms

N/A.

5. Description of the activities

5.1. Description of the equipment

The device consists of a control unit and a support. The support corresponds to the sensor device for measuring the motor impulses of the VaoX5 vision system.

The operating unit has a main switch, a display of the motor impulses, 2 function selection keys, a potentiometer for setting the threshold value and 3 BNC plug connections for displaying the signal with an external oscilloscope. Before switching on, the sensor of the support must be connected, via the supplied cable, to the round plug on the back of the operating unit.

5.2. Operating principle

The device is used to check whether the motor impulse of a quartz movement can be correctly detected by the measuring devices, taking into account a sufficient safety margin. To do this, the user must determine the position of the movement that gives the maximum amplitude of the motor impulse by moving the movement on the support. The movement must be inserted in a standardised calotte and positioned with the dial facing upwards.

Setting the display: "**Mode**" = Normal, "**Position**" = 10 %, "**Threshold**" = 1

The TTL signal displayed on the BNC interface corresponds to the inductive operation of the production's equipment: locking for 110 ms of the acquisition of the first detected impulse that exceeds the threshold. The positive edge of the signal is decisive. The fastest detection rate of the CarQua unit is 1.2 impulses per second.

5.3. Setting the display of the motor pulses

The motor pulse is displayed according to the principle of a two-channel oscilloscope. One channel displays the threshold value (so-called "trigger") and the other displays the detected pulse.

The vertical axis is scaled from 0 to 5 V and the horizontal axis in ms

The threshold value ("trigger") can be set with the potentiometer.

The "**Mode**" button can be used to select 3 different operating modes:

"Normal ", " Stop " and " Roll ".

The “Position**"** button can be used to select 3 different "Pre-Trigger" positions:

"10%", "50%" and "90%" of the "trigger" value

The signal can be displayed on an external oscilloscope via the 3 BNC connectors.

- TTL signal: digital signal: the high state represents the start of the detected pulse, with counting disabled for 110 ms.
- Threshold: "Trigger" value
- Signal: analogue signal representing the shape of the detected pulse

5.4. Provisions for the display of the motor pulses

A movement is considered compliant when the signal level of the detected pulse on the display exceeds 2.0 V.

Conditions:
- The movement must be inserted into a standardised calotte and positioned with the dial facing upwards.
- By moving the movement on the support surface, determine the position of the movement at which the maximum amplitude of the motor pulse is displayed.
- Record the maximum amplitude and enter the value in [R1].

6. Changes

Original version.

7. Annexes

N/A.