SANITARY TAPWARE
Technical document
077-02
ECAU and/or EChAU ratings for single taps and mixers
CSTB (Centre Scientifique et Technique du Bâtiment), a public establishment supporting innovation in construction, has five key activities—research and expertise, assessment, certification, tests, and dissemination of knowledge—organised to meet the challenges of the ecological and energy transition in the construction sector. Their fields of expertise include construction materials, buildings and their integration into districts and towns.

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## MODIFICATION HISTORY

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| 00           | 01/06/2017       | Update to the document layout and reference.  
   Content modifications:  
   - Some technical changes |
| 01           | 02/04/2019       | Cancels and replaces technical document 077-02_Rev 18  
   Update of technical document according to the new frame:  
   “Trame_doc_technique_VF_PC_DT_R3. ”  
   Content modifications:  
   - The EAU rating is replaced by ECAU and/or EChAU.  
   - Hot water temperature for endurance tests |
| 02           | 01/10/2020       | Reference to the regulation for use of marks (DT077-00)  
   - Addition of the method for determining the scores in chapter 2.7 “E.C.A.U. and / or E.Ch.A.U. rating” |
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1 Normative support for ECAU and/or EChAU ratings

1.1 Purpose
The purpose of this chapter is to list the articles of the NF EN 200 Standard that will be taken into account for the ECAU and/or EChAU ratings in accordance with the regulation for use DT077-00.

1.2 List of the tests involved
The table below lists the articles of the Standard NF EN 200.

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<td>14</td>
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</table>
2 ECAU and/or EChAU ratings

2.1 Foreword

ECAU and/or EChAU ratings were created to meet the expectations of market players who require performances that are superior or complementary to those indicated in the NF EN 200 standard. For single taps and mixer taps, the requirements are:

- Ergonomics with special dimensions for using the tap;
- A suitable design to facilitate the cleaning of the tap;
- Resistance to alternating pressure stress against water hammer problems;
- Verification of installation system for fixed-spout single-hole taps;
- Hydraulic performance levels according to user needs;
- Creation of the 3 acoustic classes to clarify this performance;
- Increased endurance performance by multiplying by 2.5 the requirements of the European standard to optimise maintenance frequencies;

It should be noted, however, that the use of these ECAU and/or EChAU ratings is voluntary and supplementary to the evaluation of a product that is already certified under the NF EN 200 standard.

2.2 Purpose

The purpose of this chapter is to establish the dimensional, leaktightness, hydraulic, mechanical, mechanical endurance and acoustic performance levels to be met by single taps and mixer taps to qualify for ECAU and/or EChAU ratings.

2.3 Field of application

This chapter applies to single taps and mixer taps subject to standard NF EN 200. ECAU and/or EChAU ratings are not provided for a single mixer to prevent differing ranges, with the exception of washbasin single taps or sink mixers. The minimum standard range to be presented for ECAU and/or EChAU ratings includes a washbasin mixer + a mixer with a shower function. The bidet mixer is considered optional in the presented range.
### 2.4 References to standards and additional specifications

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
<th>Standards and specifications</th>
</tr>
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<tbody>
<tr>
<td>NF EN 200: 2008</td>
<td>Sanitary tapware - Single taps and mixer taps for water supply systems types 1 and 2 - General technical specifications</td>
<td></td>
</tr>
<tr>
<td>NF EN ISO 3822-1: 1999</td>
<td>Acoustics - Laboratory tests on noise emission from appliances and equipment used in water supply installations - Part 1: Method of measurement</td>
<td></td>
</tr>
<tr>
<td>NF EN ISO 3822-2: 1995</td>
<td>Acoustics - Laboratory tests on noise emission from tapware and hydraulic equipment used in water supply installations - Part 2: Guidelines for the installation and operation of draw-off taps and tapware.</td>
<td></td>
</tr>
<tr>
<td>DT077-00</td>
<td>Regulations for use marks</td>
<td></td>
</tr>
</tbody>
</table>

### 2.5 ECAU and/or EChAU rating principle

The rating can only be assigned to taps:
- pursuant to Standard NF EN 200. The test procedures are defined in Article 1 of this document.
- having passed the performance tests for the ECAU and/or EChAU ratings. The test procedures are provided in Article 2.6 below.

#### 2.5.1 Meaning of E

The flow characteristic taken into account is the use flow ‘q’ of the tap as it is equipped (standard accessories: regulators, fittings, etc.).
There are 6 classes for this characteristic. See Article 2.7.1.1.

#### 2.5.2 Meaning of C and Ch

The comfort characteristics taken into account are the dimensions, hydraulic performance and resistance to alternating pressure stress.
There are 3 classes for this characteristic. See Article 2.7.2.1.
### Field of application

- **C**
  - Household (house, apartment, student residence)
  - Public (Hospitality, ERP (institution receiving the public), office, EHPA (nursing home), non-medical retirement home, spa treatment centre)

- **Ch**
  - Household with waiver (house, apartment, student residence)

### Class 0
- Dimensional;
- Verification of installation system for fixed-spout single-hole taps

### Class 1
- Must be C0;
- Resistance to alternating pressure stress (test carried out only for taps with ceramic heads);

### Class 2
- No C2 rating for single taps and mixer taps
- Must be C1 (note 1)
- Must be E00 for washbasin, bidet
- Must be E0 for shower outlet;
- Controlled flow rate for water saving with a flow regulator

**Note 1:** In cases in which the requirements of C and Ch are identical, only the letter C is used (e.g. for class 1, only C1 is used and there is no Ch1 rating)

### 2.5.3 Meaning of A

The acoustic characteristic taken into account is the sound pressure level, \( L_{ap} \).
There are 3 classes for this characteristic. See Article 2.7.3.1.

### 2.5.4 Meaning of U

The wear characteristic taken into account is the mechanical endurance and, more precisely, the number of operating cycles to which the following are subjected:
- obturators;
- swivel spouts;
- bath-shower diverters.

There is 1 class for this characteristic. See Article 2.7.4.1.

An application for an ECAU and/or EChAU rating involves a class 3 application for endurance tests (U3).

### 2.6 Performance level for ECAU and/or EChAU ratings

#### 2.6.1 Marking and identification

No requirements in addition to those under the NF EN 200 Standard.

#### 2.6.2 Materials

No requirements in addition to those under the NF EN 200 Standard.
2.6.3 Dimensional characteristics

In addition to the NF EN 200 Standard, the following additional dimensions must be verified: J2, D4 and P2.

- The diameter of the tapware body base (J2, established at a minimum of 45 mm) must not be obtained by introducing an insert between the base of the body and the support.

- for washbasin taps, the jet axis must intersect the washbasin surface (at the tap base) at least 120 mm from the tap base axis (D4).

NOTE As the current trend is to make taps increasingly smaller, if the minimum dimensions of projections and height are combined, the suitability for use requirement is not met.

The figure below shows in dotted lines the maximum range for standard washbasins (80 mm) and for standard taps the minimum projection (100 mm, D1) with the minimum height (25 mm). It is clearly impossible to wash one's hands under the tap.

- the spout must be separated in such a way that a rod consisting of a cylindrical segment with a 25 mm radius that is 20 mm in height and 30 mm in length of the generator can be slid onto the plane of the base. The rod must at least touch the base in the common base plane.
2.6.4 Order of tests

In Standard NF EN 200, under Chapter 6.4, in Table 6, the order of the tests for all of the samples was changed as follows for ECAU and/or EChAU ratings.

<table>
<thead>
<tr>
<th>Sample Sequence</th>
<th>Order</th>
<th>Tests</th>
</tr>
</thead>
</table>
| Sample 0 Installation | 1. | §2.6.13 Verification of the installation system for sanitary tapware  
Please note that this test is only for admission |
<p>| Sample 1 Materials | 1. | §5.2A Materials (salt spray) |
| Sample 2 Materials | 1. | §5.2B Materials (air thermal shock) |
| Sample 3 Obturator endurance | 1. | §4.1 Marking |
| | 2. | §4.2 Identification |
| | 3. | §13 Protection against backflow |
| | 4. | §8.3 Leaktightness |
| | 5. | §8.4 Leaktightness |
| | 6. | §12.1 Endurance |
| | 7. | §8.3 Leaktightness |
| | 8. | §8.4 Leaktightness |
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| | 10. | §8.3 Leaktightness |
| | 11. | §8.4 Leaktightness |</p>
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<td></td>
<td>3.</td>
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<td></td>
<td>4.</td>
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<td><strong>Sample 5 Spout endurance</strong></td>
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<td>6.</td>
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<td></td>
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2.6.5 Leaktightness characteristics
No requirements in addition to those under the NF EN 200 Standard.

2.6.6 Pressure resistance characteristics - Mechanical behaviour under pressure
No requirements in addition to those under the NF EN 200 Standard.

2.6.7 Hydraulic characteristics

2.6.7.1 Flow rate in “fully open” position
Verification of the flow rate value obtained with class E, see Article 2.7.1.1.

2.6.7.2 “Water saving” controlled flow rate
This test applies to class Ch2.
To be considered in the framework of the EChAU rating, the “water saving” characteristic must meet the following requirements:
Single taps or mixer taps (equipped with a ceramic head) used in a sanitary installation are subject to controlled flow if they are used for the washbasin, bidet, shower and bath-shower (on the shower outlet).
To ensure the flow rate in the full flow position, it seemed advisable to use a test described in Article 10.6.1 of the NF EN 200 standard and to measure the flow rate in the fully open position.

2.6.7.2.1 Test principle
The purpose is to determine, for the tested tap, the value of the flow rate for reference pressures of 1.5 - 3 and 4.5 bar, also constant on each of the hot and cold water supplies.
The measurement is conducted on a tap with the flow control device(s) in the full flow position.

2.6.7.2.2 Equipment
See Article 10.3 of Standard NF EN 200.

2.6.7.2.3 Operating procedure
- Supply the tap with a dynamic pressure of 0.3 (+ 0.02/0) MPa or 3 (+ 0.2/0) bar.
- Open the flow control device(s) in the fully open position
- Measure and record the flow values in the full flow position.
- Repeat this test with dynamic pressures of 1.5 (+ 0.2/0) MPa or 1.5 (+ 0.2/0) bar and 4.5 (+ 0.2/0) MPa or 4.5 (+ 0.2/0) bar.

2.6.7.2.4 Required characteristics

<table>
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<th>Type of product</th>
<th>Flow requirements in L/min</th>
</tr>
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<td>Dynamic test pressures:</td>
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</tr>
<tr>
<td>Dynamic test pressures:</td>
<td>3 (+0.2/0)</td>
</tr>
<tr>
<td>Dynamic test pressures:</td>
<td>1.5 (+0.2/0)</td>
</tr>
<tr>
<td>Dynamic test pressures:</td>
<td>4.5 (+0.2/0)</td>
</tr>
<tr>
<td>Washbasin and bidet within the setting range of 34 to 44 °C</td>
<td>4 ≤ Q ≤ 6</td>
</tr>
<tr>
<td>Washbasin and bidet within the setting range of 34 to 44 °C</td>
<td>≥ 2</td>
</tr>
<tr>
<td>Washbasin and bidet within the setting range of 34 to 44 °C</td>
<td>≤ 9</td>
</tr>
<tr>
<td>Shower and bath-shower (shower outlet) within the setting range of 34 to 44 °C</td>
<td>9 ≤ Q ≤ 12</td>
</tr>
<tr>
<td>Shower and bath-shower (shower outlet) within the setting range of 34 to 44 °C</td>
<td>≥ 6</td>
</tr>
<tr>
<td>Shower and bath-shower (shower outlet) within the setting range of 34 to 44 °C</td>
<td>≤ 15</td>
</tr>
</tbody>
</table>

2.6.8 Mechanical strength characteristics - Operating device torque test.
No requirements in addition to those under the NF EN 200 Standard.
2.6.9 Mechanical endurance characteristics

Endurance performance is modified by multiplying by 2.5 the requirements for all mobile equipment under the standard NF EN 200.

In the NF EN 200 Standard, under clause 12.1.2.2, in table 11, the hot water temperature for performing the endurance tests is 55 °C to 65 °C instead of (65 ± 2) °C.

In the NF EN 200 Standard, under clause 12.2.2.2, in table 12, the hot water temperature for performing the endurance tests is 55 °C to 65 °C instead of (65 ± 2) °C.

2.6.10 Protection against backflow

No requirements in addition to those under the NF EN 200 Standard.

2.6.11 Acoustic characteristics

Tapware with Lap > 30 cannot be admitted for these ECAU and/or EChAU ratings.

Verification of the acoustic value obtained with class A; see article 2.7.3.1.

2.6.12 Resistance to alternating pressure stress

To be examined in the framework of the ECAU and/or EChAU ratings, single taps and mixer taps must meet the following requirements:

- Single taps and mixer taps used in a sanitary installation are subject to considerable pressure variations due to the closing of installed devices - solenoid valves of washing machines, mixers, valves, etc.
- To ensure their resistance to such stress, it seemed advisable to use a test described in the T 54-094 Standard for the rating of supply hoses and piping components.

2.6.12.1 Test principle

Application during 200 cycles of a variable and defined internal hydraulic pressure at the tap inlets, with the tap in the closed position.

2.6.12.2 Equipment

The equipment essentially includes:

A pressure generator capable of generating variable pressure that can vary at constant frequency between a low limit and a high limit, establishing constant amplitude. The diagram of that variation takes the form of a generally rectangular signal (see Figure 1).

![Figure 1 – Signal waveform – alternating pressures](image)

- the time needed to shift from low pressure to high pressure and vice versa must be as short as possible and never longer than one-tenth of the period;
the low and high pressure values must be obtained and checked to within ± 2% of the desired values;
to check the waveform of the signal representing the pressure variation, the generator must be combined with a device that can verify the pressure changes in the test specimen (low-inertia pressure sensor and graphic data recorder or oscilloscope).

2.6.12.3 Operating procedure

Apply 100 cycles to the closed tap (filled with water and cleared of air):
- low pressure of (8 ± 1) bar;
- high pressure of (50 ± 1) bar;
- frequency of (1 ± 0.5) Hertz.
  1) on one of the inlets, (the other being in the open air);
  2) on the other inlet

Note: A “slight” leak is allowed during the test if it does not have an influence on the low and high pressures of the test.

After the alternating pressure test, perform the leak test in accordance with Article 8.3 of standard NF EN 200.

2.6.12.4 Required characteristics

During the leak test, no visible deterioration or leakage should be observed.

2.6.13 Verification of the installation system for sanitary tapware

In view of the lack of a tightening system verification test under standard NF EN 200 for single-hole taps with a fixed spout (washbasin, bidet and bathtub) which are installed on horizontal planes, it is necessary to verify tightening performance according to the following steps:

2.6.13.1 Test principle

The test consists of verifying the tightening behaviour by applying a specific force to the end of the tapware spout

2.6.13.2 Test method

The test is performed by conducting the following operations:
- Install the tapware on the test plate;
- Tighten the nut of the tap installation system to a torque of 7 (-0.5/0) N.m (if the installation system does not have a nut, tighten the installation system by hand);
- Apply a force of 98 (+2/0) N at the end of the spout (the point at which the force is to be applied is located on the axis of the aerator);
- Maintain the force during (60 ± 5) s;
- Verify any rotation of the tapware;

2.6.13.3 Requirements

There should be no rotation of the tapware during the test.

2.6.13.4 Frequency

The tightening test is carried out when new products are admitted and/or when one of the components of the tapware installation system and/or the tapware component in contact with the table is modified.
2.7 ECAU and/or EChAU ratings for single taps and mixer taps

The essential principle of ECAU and/or EChAU ratings is that the different characteristics are independent of one another. The level of each characteristic is to be selected as needed. The highest level may apply for one characteristic, while the lowest level may apply for another.

2.7.1 Hydraulic or flow characteristic

2.7.1.1 Classification

Depending on their performance level, tapware can be classified as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Flow rate value</th>
</tr>
</thead>
<tbody>
<tr>
<td>E00</td>
<td>4 L/min ( \leq q \leq 6 ) L/min</td>
</tr>
<tr>
<td>E0</td>
<td>9 L/min ( \leq q &lt; 12 ) L/min</td>
</tr>
<tr>
<td>E1</td>
<td>12 L/min ( \leq q &lt; 16 ) L/min</td>
</tr>
<tr>
<td>E2</td>
<td>16 L/min ( \leq q &lt; 20 ) L/min</td>
</tr>
<tr>
<td>E3</td>
<td>20 L/min ( \leq q &lt; 25.2 ) L/min</td>
</tr>
<tr>
<td>E4</td>
<td>25.2 L/min ( \leq q )</td>
</tr>
</tbody>
</table>

NOTE  For bathtub tapware, the minimum class is E3

Depending on their level of performance, the valves have a score of type A, B, C, D.

Washbasin / bidet / sink faucets

<table>
<thead>
<tr>
<th>Flow rate at 3 bar (L/min)</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>18</th>
<th>20 and +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical score if comfort score = C0, C1, Ch2 or Ch3</td>
<td>E00</td>
<td>E0</td>
<td>E1</td>
<td>E2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.7.1.2 Selection criteria

Flow rate class selection will be based on the supplied device, the building comfort level; the type of room to be equipped.

2.7.2 Comfort characteristics

2.7.2.1 Classification

Depending on their performance level, tapware can be classified as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>The tap must comply with the requirements of the following articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>C0</td>
<td>2.6.3 Dimensional characteristics of this document</td>
</tr>
<tr>
<td></td>
<td>2.6.13 Verification of installation system for fixed-spout single-hole taps</td>
</tr>
<tr>
<td>C1</td>
<td>meets the requirements of Class C0</td>
</tr>
<tr>
<td></td>
<td>2.6.12 Resistance to alternating pressure stress (only for single taps and mixer taps with ceramic heads)</td>
</tr>
<tr>
<td>Ch1</td>
<td>See C1 (Note 1)</td>
</tr>
<tr>
<td>Ch2</td>
<td>meets the requirements of Class C1 (Note 1)</td>
</tr>
<tr>
<td></td>
<td>2.6.7.1 Flow rate in “fully open” position</td>
</tr>
<tr>
<td></td>
<td>Verification of the flow rate value obtained with class E, see Article 2.7.1.1.</td>
</tr>
<tr>
<td></td>
<td>“Water saving” controlled flow rate</td>
</tr>
</tbody>
</table>

Note 1: In cases in which the requirements of C and Ch are identical, only the letter C is used (e.g. for class 1, only C1 is used and there is no Ch1 rating)

Depending on their level of performance, the valves have a score of type A, B, C, D.
Performance criterion C depends on the tapware design:

<table>
<thead>
<tr>
<th>Rating</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical score</td>
<td>C1</td>
<td>C0</td>
</tr>
</tbody>
</table>

- Ergonomic faucets
  - + resistant to water hammers
  - Ergonomics of control lever and spout, ease of cleaning, etc.

2.7.2.2 Selection criteria

The comfort class selection will mainly depend on the characteristics and use of the building.
2.7.3 Acoustic characteristic

2.7.3.1 Classification

Depending on their performance level, tapware can be classified as follows:

<table>
<thead>
<tr>
<th>Acoustic group</th>
<th>Class</th>
<th>Lap</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>A1</td>
<td>20 dB (A) &lt; Lap ≤ 30 dB (A)</td>
</tr>
<tr>
<td>I</td>
<td>A2</td>
<td>15 dB (A) &lt; Lap ≤ 20 dB (A)</td>
</tr>
<tr>
<td>I</td>
<td>A3</td>
<td>Lap ≤ 15 dB (A)</td>
</tr>
</tbody>
</table>

Depending on their level of performance, the valves have a score of type A, B, C, D.

2.7.3.2 Selection criteria

The acoustic class selection will mainly depend on the characteristics and use of the building.

2.7.4 Mechanical endurance or wear resistance characteristic

2.7.4.1 Classification

Depending on the actual level of wear resistance of its various components, tapware can be classified as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Number of cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>U1</td>
<td>Obturator: 200,000 cycles</td>
</tr>
<tr>
<td></td>
<td>Swivel spout: 80,000 cycles</td>
</tr>
<tr>
<td></td>
<td>Bath-shower diverter: 30,000 cycles</td>
</tr>
<tr>
<td>U2</td>
<td>Obturator: 350,000 cycles</td>
</tr>
<tr>
<td></td>
<td>Swivel spout: 140,000 cycles</td>
</tr>
<tr>
<td></td>
<td>Bath-shower diverter: 50,000 cycles</td>
</tr>
<tr>
<td>U3</td>
<td>Obturator: 500,000 cycles</td>
</tr>
<tr>
<td></td>
<td>Swivel spout: 200,000 cycles</td>
</tr>
<tr>
<td></td>
<td>Bath-shower diverter: 80,000 cycles</td>
</tr>
</tbody>
</table>

Depending on their level of performance, the valves have a score of type A, B, C, D.
Performance criterion U corresponds to the service life of moving parts of the faucet:

<table>
<thead>
<tr>
<th>Rating</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical score</td>
<td>U3</td>
<td>U2</td>
<td>U1</td>
<td>U0</td>
</tr>
<tr>
<td>Rotating valve</td>
<td>500,000</td>
<td>350,000</td>
<td>200,000</td>
<td>&lt; 200,000</td>
</tr>
<tr>
<td>Mechanical cartridge</td>
<td>175,000</td>
<td>122,500</td>
<td>70,000</td>
<td>&lt; 70,000</td>
</tr>
<tr>
<td>Automatic diverter</td>
<td>80,000</td>
<td>50,000</td>
<td>30,000</td>
<td>&lt; 30,000</td>
</tr>
<tr>
<td>Spout</td>
<td>200,000</td>
<td>140,000</td>
<td>80,000</td>
<td>&lt; 80,000</td>
</tr>
</tbody>
</table>

Number of cycles before wear

2.7.4.2 Selection criteria

U0: this score is not possible for this rating because it is lower than the product standard.
U1: use.
U2: intensive use.
U3: intensive use and use in harsh conditions.

2.8 Example of ECAU and/or EChAU ratings

Bath-shower tapware with:
a usage flow rate of 24 L/min, with an $L_{AP}$ of 18 dB (A) meeting level 1 requirements in the comfort tests and having passed the endurance tests (500,000 cycles (obturator) - 80,000 cycles (diverter)) will be classified as:

\[E_{3/1} C_1 A_2 U_3\]

Washbasin tapware with:
a usage flow rate of 5 L/min, with an $L_{AP}$ of 13 dB (A) meeting level 2 requirements in the comfort tests and having passed the endurance tests (500,000 cycles (obturator)) will be classified as:

\[E_{00} C_2 A_3 U_3\]
### 2.9 Rating presentation

#### 2.9.1 Specific information for the catalogue or other commercial media

See Chapter 6.1 of the regulations for use of DT077-00.

The specific information on the methods of rating of combination taps and simple valves are as defined follows:

<table>
<thead>
<tr>
<th>Flow</th>
<th>E</th>
<th>q L/min measured under 3 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>E00 4 L/min ≤ q ≤ 6 L/min</td>
</tr>
<tr>
<td></td>
<td>E0</td>
<td>9 L/min ≤ q &lt; 12 L/min</td>
</tr>
<tr>
<td></td>
<td>E1</td>
<td>12 L/min ≤ q &lt; 16 L/min</td>
</tr>
<tr>
<td></td>
<td>E2</td>
<td>16 L/min ≤ q &lt; 20 L/min</td>
</tr>
<tr>
<td></td>
<td>E3</td>
<td>20 L/min ≤ q &lt; 25.2 L/min</td>
</tr>
<tr>
<td></td>
<td>E4</td>
<td>25.2 L/min ≤ q</td>
</tr>
</tbody>
</table>

*For bathtub tapware, the minimum class is E3*

<table>
<thead>
<tr>
<th>Comfort</th>
<th>C</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C0</td>
<td>Dimensions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verification of installation system for fixed-spout single-hole taps</td>
</tr>
<tr>
<td></td>
<td>C1</td>
<td>Resistance to alternate pressures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acoustics</th>
<th>A</th>
<th>Lap dB (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1</td>
<td>20 dB (A) &lt; Lap ≤ 30 dB (A)</td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>15 dB (A) &lt; Lap ≤ 20 dB (A)</td>
</tr>
<tr>
<td></td>
<td>A3</td>
<td>Lap ≤ 15 dB (A)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wear</th>
<th>U</th>
<th>Number of cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U3</td>
<td>Obturator 500,000 cycles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swivel spout 200,000 cycles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bath-shower diverter 80,000 cycles</td>
</tr>
<tr>
<td></td>
<td>U2</td>
<td>Obturator 350,000 cycles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swivel spout 140,000 cycles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bath-shower diverter 50,000 cycles</td>
</tr>
<tr>
<td></td>
<td>U3</td>
<td>Obturator 500,000 cycles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swivel spout 200,000 cycles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bath-shower diverter 80,000 cycles</td>
</tr>
</tbody>
</table>

#### 2.9.2 Product information

See Chapter 6.2 of the regulations for use of DT077-00.
3 ECAU and/or EChAU rating application

The rating application must be issued by the applicant/holder in one copy (1 original on the applicant's letterhead paper in French or English) according to the cases and models indicated below. All the documents are to be remitted to CSTB.

In the event that the product comes from a manufacturing unit located outside the European Economic Area, the applicant shall designate a representative within the European Economic Area who co-signs the application.

Note: Electronic versions of template letters and sheets may be obtained from CSTB.

The applicant produces a file that contains the elements described in the following table depending on the type of application.

<table>
<thead>
<tr>
<th>Summary Applications Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of application</strong></td>
</tr>
<tr>
<td>Application and commitment letter</td>
</tr>
<tr>
<td>Sales literature</td>
</tr>
</tbody>
</table>

3.1 For an initial rating application

The applicant shall prepare a dossier which includes:
- an application and commitment letter in accordance with standard letter 1 A;
- if a representative, application and commitment letter as per standard letter 1 B;

3.2 For a complementary rating application

The holder shall prepare a file containing the following:
- an application and commitment letter in accordance with standard letter 2 A;
- if representative, application and commitment letter as per standard letter 2 B;

3.3 For a new rating application following a penalty of withdrawal of ECAU and/or EChAU ratings

The holder shall prepare a file containing the following:
- specific items that all applicants must submit as part of a new admission application where the right of use has been withdrawn as a result of a sanction, using standard sheet 7.

3.4 For an application for the suspension of the ECAU and/or EChAU rating

The holder shall prepare a file containing the following:
- a suspension letter as per standard letter 5 A;
- if a representative, a suspension letter as per standard letter 5 B.
3.5 For an application for renunciation of the ECAU and/or EChAU rating

The holder shall prepare a file containing the following:

- a renunciation letter as per standard letter 6A;
- **if a representative**, a renunciation letter as per standard letter 6B.
STANDARD LETTER 1A
ECAU AND/OR EChAU RATINGS

ECAU OR EChAU RATING APPLICATION FORM
FOR APPLICANTS LOCATED IN THE EUROPEAN ECONOMIC AREA
(to be drawn up on the applicant's/holder's letterhead paper)

Centre Scientifique et Technique du Bâtiment
Direction Hydraulique et Equipements Sanitaires,
(HES)
Division Robinetterie et Appareils Sanitaires (RAS)
For the attention of Mr. Laurent Rousseau
84, avenue Jean Jaurès
Champs sur Marne
F-77447 Marne La Vallée Cedex 2

Subject: ECAU and/or EChAU rating admission application
Attachment(s): a technical file.

Dear Sir, Madam,

I would like to request an ECAU and/or EChAU rating:
- for the following product/range of products: ............ (detailed list of the product/range of products or
  specify "as set out in the list included with this application");
- produced at the following production unit: ............ (company name, address);
- and for the following trade name: ............ (trademark and/or specific trade reference, which may be on
  the list included with this application).

For this purpose, I declare that I have read and accept technical document 077 associated with this rating and
undertake to comply with it and to inform my commercial network during the entire validity period of the ECAU
and/or EChAU rating and in particular to comply without restrictions or reservations with the decisions made by
CSTB.

Yours faithfully,

Date, signature and name in full of the
applicant/holder’s legal representative
**STANDARD LETTER 1B**

**ECAU AND/OR EChAU RATINGS**

**ECAU OR EChAU RATING APPLICATION FORM**

*FOR APPLICANTS LOCATED OUTSIDE OF THE EUROPEAN ECONOMIC AREA*  
(to be drawn up on the applicant's/holder's letterhead paper)

Centre Scientifique et Technique du Bâtiment (CSTB)  
Direction Hydraulique et Equipements Sanitaires,  
(HES)  
Division Robinetterie et Appareils Sanitaires (RAS)  
For the attention of Mr. Laurent Rousseau  
84, avenue Jean Jaurès  
Champs sur Marne  
F-77447 Marne La Vallée Cedex 2

Subject: **ECAU and/or EChAU rating admission application (with a representative)**  
Attachment(s): a technical file.

Dear Sir, Madam,

I would like to request an ECAU and/or EChAU rating:

- for the following product/range of products: ............ (detailed list of the product/range of products or specify “as set out in the list included with this application”);
- produced at the following production unit: ............ (company name, address);
- and for the following trade name: ............ (trademark and/or specific trade reference, which may be on the list included with this application).

For this purpose, I declare that I have read and accept technical document 077 associated with this rating and undertake to comply with it and to inform my commercial network during the entire validity period of the ECAU and/or EChAU rating and in particular to comply without restrictions or reservations with the decisions made by CSTB.

Furthermore, I appoint the Company ............ (company name), ............ (company legal form), ............ (registered office) represented by Mr/Ms ............ (name of the legal representative) in that person’s capacity as ............ (position) to represent me in the European Economic Area for all matters relative to ECAU and/or EChAU ratings.

I undertake to immediately notify CSTB of any new appointment of the representative designated above.

In this regard, I request that the expenses that are to be borne by me be invoiced directly to the representative. They will make the payments on my behalf and in my name as soon as the invoices are received, as agreed when accepting the role of representative.

Yours faithfully,

Date, signature and name in full of the applicant's legal representative  
preceded by the handwritten wording “Approving representation”

Date, signature and name in full of the representative in the European Economic Area  
preceded by the handwritten wording “Accepting representation”.
STANDARD LETTER 2A
ECAU AND/OR EChAU RATINGS

COMPLEMENTARY APPLICATION FORM FOR ECAU AND/OR EChAU RATING
FOR APPLICANTS LOCATED IN THE EUROPEAN ECONOMIC AREA
(to be drawn up on the applicant's/holder's letterhead paper)

Centre Scientifique et Technique du Bâtiment (CSTB)
Direction Hydraulique et Equipements Sanitaires,
(HES)
Division Robinetterie et Appareils Sanitaires (RAS)
For the attention of Mr. Laurent Rousseau
84, avenue Jean Jaurès
Champs sur Marne
F-77447 Marne La Vallée Cedex 2

Subject: Complementary application for the ECAU and/or EChAU rating
Attachment(s): a technical file.

Dear Sir, Madam,

As holder of the ECAU and/or EChAU rating for the product(s) of our manufacture identified below:
- designation of the product(s): …………
- production unit: …………
- right of use granted on ………… (date) and bearing the following number: ………… (number of valid certificate)

I am writing to apply for the ECAU and/or EChAU rating for the following product/range of products that we manufacture:
- detailed list of the product/range of products: …………
- specific trade reference: …………

(for this information may be included in a list attached to this application)

For an extension application, please provide the information below:
This product deviates from the certified product/range of products due to the following modifications: …………
<description of the modifications>.

The product/range of products for which I am seeking an extension will replace the certified product listed above:
- NO (1);
- YES (1).

I declare that the products/product range covered by this application are, with relation to the other characteristics, strictly in conformity with the products/product range already certified and manufactured under the same conditions.

For this purpose, I declare that I have read and accept technical document 077 associated with this rating and undertake to comply with it and to inform my commercial network during the entire validity period of the ECAU and/or EChAU rating and in particular to comply without restrictions or reservations with the decisions made by CSTB.

Yours faithfully,

Date, signature and name in full
of the applicant/holders legal representative

(1) Delete as appropriate.
COMPLEMENTARY APPLICATION FORM FOR ECAU AND/OR EChAU RATING
FOR APPLICANTS LOCATED OUTSIDE OF THE EUROPEAN ECONOMIC AREA
(to be drawn up on the applicant’s/holder’s letterhead paper)

Centre Scientifique et Technique du Bâtiment (CSTB)
Direction Hydraulique et Equipements Sanitaires,
(HES)
Division Robinetterie et Appareils Sanitaires (RAS)
For the attention of Mr. Laurent Rousseau
84, avenue Jean Jaurès
Champs sur Marne
F-77447 Marne La Vallée Cedex 2

Subject: Complementary application for the ECAU and/or EChAU rating (with a representative)
Attachment(s): a technical file.

Dear Sir, Madam,

As holder of the ECAU and/or EChAU rating for the product(s) of our manufacture identified below:
- designation of the product(s): …………
- production unit: …………
- right of use granted on ………… (date) and bearing the following number: ………… (number of valid certificate)

I am writing to apply for the ECAU and/or EChAU rating for the following product/range of products that we manufacture:
- detailed list of the product/range of products: …………
- specific trade reference: …………

(this information may be included in a list attached to this application)

For an extension application, please provide the information below:

This product deviates from the certified product/range of products due to the following modifications: ………… <description of the modifications>.

The product/range of products for which I am seeking an extension will replace the certified product listed above:
- NO (1);
- YES (1).

I declare that the products/product range covered by this application are, with relation to the other characteristics, strictly in conformity with the products/product range already certified and manufactured under the same conditions.

For this purpose, I declare that I have read and accept technical document 077 associated with this rating and undertake to comply with it and to inform my commercial network during the entire validity period of the ECAU and/or EChAU rating and in particular to comply without restrictions or reservations with the decisions made by CSTB.

Furthermore, I appoint the Company ………… (company name), ………… (company legal form), ………… (registered office) represented by Mr/Ms ………… (name of the legal representative) in that person’s capacity as ………… (position) to represent me in the European Economic Area for all matters relative to ECAU and/or EChAU ratings.

I undertake to immediately notify CSTB of any new appointment of the representative designated above.

In this regard, I request that the expenses that are to be borne by me be invoiced directly to the representative. They will make the payments on my behalf and in my name as soon as the invoices are received, as agreed when accepting the role of representative.

Yours faithfully,

Date, signature and name in full of the applicant’s legal representative precede by the handwritten wording “Approving representation”

Date, signature and name in full of the representative in the European Economic Area preceded by the handwritten wording “Accepting representation”

(1) Delete as appropriate.
ECAU AND/OR EChAU RATINGS

APPLICATION FORM FOR RENUNCIATION OF THE ECAU FORM
FOR APPLICANTS LOCATED IN THE EUROPEAN ECONOMIC AREA

(to be drawn up on the applicant's/holder's letterhead paper)

Centre Scientifique et Technique du Bâtiment (CSTB)
Direction Hydraulique et Equipements Sanitaires,
(HES)
Division Robinetterie et Appareils Sanitaires (RAS)
For the attention of Mr. Laurent Rousseau
84, avenue Jean Jaurès
Champs sur Marne
F-77447 Marne La Vallée Cedex 2

Subject: Application for renunciation of the ECAU and/or EChAU rating

Dear Sir, Madam,

As holder of the ECAU and/or EChAU rating, I would like to renounce the ECAU and/or EChAU rating for the product(s) that we manufacture identified by the following references:

- designation of the product(s): …………
- manufacturing unit: ………… (company name, address): …………
- brand name: …………
- commercial reference: …………
- date of ECAU and/or EChAU rating admission: ………… or certificate No.: …………

for the following reasons:

- …………

for a maximum duration of 6 months, renewable once.

Manufacturing is due to cease on: …………

The inventories of these products with packaging marked ECAU or EChAU are the following: …………

The anticipated time it will take to deplete them is: …………

Yours faithfully,

Date, signature and name in full of the holder’s legal representative
APPLICATION FOR RENUNCIATION OF THE ECAU AND/OR EChAU RATING WITH A REPRESENTATIVE FOR APPLICANTS LOCATED OUTSIDE OF THE EUROPEAN ECONOMIC AREA

For the attention of Mr Laurent Rousseau
Division Robinetterie et Appareils Sanitaires (Tapware and Sanitaryware Division)
Direction HES
CSTB
84 avenue Jean Jaurès
CHAMPS-SUR-MARNE
77447 MARNE LA VALLEE CEDEX 2 (France)

Subject: Application for renunciation of the ECAU and/or EChAU rating with a representative

Dear Sir, Madam,

As holder of the ECAU and/or EChAU rating, I would like to renounce the ECAU and/or EChAU rating for the product(s) that we manufacture identified by the following references:

- designation of the product(s):
- manufacturing unit: (company name, address):
- brand name:
- commercial reference:
- date of ECAU and/or EChAU rating admission or admission no.:

for the following reasons:

Manufacturing is due to cease on:

The inventories of these products with packaging marked ECAU or EChAU are the following:

The expected time for their depletion is:

Yours faithfully,

Date and signature of the holder’s legal representative

Date and signature of the representative in the European Economic Area
Subject: Application for suspension of the ECAU and/or EChAU ratings

Dear Sir, Madam,

As holder of the ECAU and/or EChAU rating, I would like to request the suspension of the ECAU and/or EChAU rating for the product(s) that we manufacture identified by the following references:

- designation of the product(s):
- manufacturing unit: ………… (company name, address): …………
- brand name: …………
- commercial reference: …………
- ECAU and/or EChAU rating admission date: ………… or certificate No.: …………

for the following reasons:

- …………

for a maximum duration of 6 months, renewable once.

Manufacturing is due to cease on: …………

The inventories of these products with packaging marked ECAU or EChAU are the following: …………

The anticipated time it will take to deplete them is: …………

Yours faithfully,

Date, signature and name in full of the holder’s legal representative
APPLICATION FORM FOR SUSPENSION OF THE ECAU OR EChAU RATING
FOR APPLICANTS LOCATED OUTSIDE OF THE EUROPEAN ECONOMIC AREA
(to be drawn up on the applicant's/holder's letterhead paper)

Centre Scientifique et Technique du Bâtiment (CSTB)
Direction Hydraulique et Equipements Sanitaires, (HES)
Division Robinetterie et Appareils Sanitaires (RAS)
For the attention of Mr. Laurent Rousseau
84, avenue Jean Jaurès
Champs sur Marne
F-77447 Marne La Vallée Cedex 2

Subject: Application for suspension of the ECAU and/or EChAU ratings (with a representative)

Dear Sir, Madam,

As holder of the ECAU and/or EChAU rating, I would like to request the suspension of the ECAU and/or EChAU rating for the product(s) that we manufacture identified by the following references:

- designation of the product(s):
- manufacturing unit: ............ (company name, address): ............
- brand name: ............
- commercial reference: ............
- ECAU and/or EChAU rating admission date: ............ or certificate No.: ............

for the following reasons:

- ............

for a maximum duration of 6 months, renewable once.

Manufacturing is due to cease on: ............

The inventories of these products with packaging marked ECAU or EChAU are the following: ............

The anticipated time it will take to deplete them is: ............

Yours faithfully,

Date, signature and name in full of the holder's legal representative                      Date, signature and name in full of the representative in the European Economic Area
STANDARD SHEET 7
ECAU AND/OR EChAU RATINGS

SPECIFIC ITEMS ALL APPLICANTS (INDUSTRIALISTS, IMPORTERS, DISTRIBUTORS, ETC.) MUST PRODUCE AS PART OF A NEW ADMISSION APPLICATION WHEN THE RATING HAS BEEN WITHDRAWN AS A RESULT OF A SANCTION

In the event of an act of deceptive commercial practice under Articles L 121-2 to L121-5 of the Consumer Code (indication of a false rating of a certified product or a false label).

The applicant is responsible for determining and carrying out a course of action that will fully address and remedy the causes and consequences of their commitments as regards the correct usage of the certification mark.

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>MINIMUM PROOF TO BE SUPPLIED BY THE CSTB APPLICANT SHOWING THE ACTIONS THEY HAVE UNDERTAKEN TO FULLY ADDRESS AND REMEDY THE CAUSES AND CONSEQUENCES</th>
<th>VALIDITY OF THE PROOF RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURATIVE ACTIONS</td>
<td>• A list of those affected including full contact details (customers, prospects, technical controllers, etc.) who have received false attestations/false certificates; failing that, a list of those affected (customers, prospects, technical controllers, etc.) who have been contacted over the preceding 24 months.</td>
<td>CSTB will verify that this action has been carried out by contacting 5% of those affected or at least 5 customers and technical controllers.</td>
</tr>
<tr>
<td></td>
<td>☐ List sent ☐ List not sent Comments: ..........</td>
<td>☐ List sent ☐ List not sent Comments: ..........</td>
</tr>
<tr>
<td></td>
<td>• List of customers, including full contact details, who have received products with inappropriately marked packaging information; otherwise, the list of customers of the past 24 months.</td>
<td>CSTB will verify that this action has been carried out by contacting 5% of those affected or at least 5 customers and technical controllers.</td>
</tr>
<tr>
<td></td>
<td>☐ List sent ☐ List not sent Comments: ..........</td>
<td>☐ List sent ☐ List not sent Comments: ..........</td>
</tr>
<tr>
<td></td>
<td>• Letter written by the Applicant’s manager informing those affected of the invalidity of the false attestations/false certificates they have been sent.</td>
<td>CSTB will verify that this action has been carried out by contacting 5% of the customers of or at least 5 customers</td>
</tr>
<tr>
<td></td>
<td>☐ Letter of information duly implemented, corroborated by those affected ☐ Letter of information not implemented or partially implemented Comments: ..........</td>
<td>☐ Letter of information duly implemented, corroborated by those affected ☐ Letter of information not implemented or partially implemented Comments: ..........</td>
</tr>
<tr>
<td></td>
<td>• Letter written by the Applicant’s manager informing the customers of products that are inappropriately marked or products bearing the certification mark(s).</td>
<td>CSTB will verify that this action has been carried out by contacting 5% of the customers of or at least 5 customers</td>
</tr>
<tr>
<td></td>
<td>☐ Letter of information duly implemented, corroborated by those affected ☐ Letter of information not implemented or partially implemented Comments: ..........</td>
<td>☐ Letter of information duly implemented, corroborated by those affected ☐ Letter of information not implemented or partially implemented Comments: ..........</td>
</tr>
<tr>
<td></td>
<td>• Action undertaken against the person or persons responsible for approving and issuing the false attestations/false certificates and/or delivering inappropriately marked products.</td>
<td>CSTB will verify that this action has been carried out by contacting 5% of the customers or at least 5 customers</td>
</tr>
<tr>
<td></td>
<td>☐ Action is relevant ☐ Action is not relevant Comments: ..........</td>
<td>☐ Action is relevant ☐ Action is not relevant Comments: ..........</td>
</tr>
</tbody>
</table>
4 Prices

The purpose of this chapter is to determine the amount due for services related to the ECAU and EChAU ratings and describe the terms of payment.

The ECAU and EChAU ratings include the following services:
- Development, examination of application and implementation of ECAU and/or EChAU ratings;
- Operation of ECAU and/or EChAU ratings;
- Testing;

4.1 Services related to the ECAU and EChAU ratings

<table>
<thead>
<tr>
<th>Nature of the service</th>
<th>Definition of the service</th>
<th>Paying for the services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Management:</strong></td>
<td>Participation in the implementation of the ratings, including preparation of the associated technical document.</td>
<td>Initial/complementary application: See § 4.2.1</td>
</tr>
<tr>
<td>Development and implementation of ratings, examination of the rating application</td>
<td>Services including examination of application files, relations with applicants, laboratories and assessment of inspection results.</td>
<td></td>
</tr>
<tr>
<td><strong>Management:</strong></td>
<td>Services including management of rating files, relations with holders, laboratories, publication of ratings data on certificates, assessment of inspection results.</td>
<td>Monitoring: See § 4.2.2</td>
</tr>
<tr>
<td>Rating operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tests</strong></td>
<td>Laboratories’ testing services</td>
<td>Initial/complementary application: See § 4.2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monitoring: See § 4.2.2</td>
</tr>
</tbody>
</table>

The laboratories’ price lists are provided upon request. The applicant/holder supplies samples free of charge and makes them available at the laboratory’s address. The costs related to the import duties and taxes are to be borne by the test applicant; the applicant shall pay all duties and taxes before sending the samples.
4.2 Paying for the services

4.2.1 Initial application/complementary application

Management and testing fees related to examination services are invoiced in the framework of an initial or complementary ECAU and/or EChAU rating application. They are payable in one instalment, at the time at which the application is filed, for official registration.

Such fees will remain payable even if the ECAU and/or EChAU rating is not granted or extended or if the application is withdrawn during the examination.

4.2.2 Monitoring

Fees for annual services related to management and testing of ECAU and/or EChAU ratings are invoiced during the first quarter of each year and will remain payable in the event of non-renewal, withdrawal, cancellation or suspension of the ECAU and/or EChAU rating during the year.

4.2.3 Non-payment of amounts due

The applicant or holder of the ECAU and/or EChAU rating must pay all fees in accordance with the established terms of payment. Any failure on their part is an obstacle to the fulfilment by CSTB of the responsibilities of inspection and corrective action that are incumbent upon it hereunder.

If a first official notice by registered letter with acknowledgement of receipt does not result in the payment of all amounts due within one month, any established penalties may be applied for all of the products accepted for such holder.

4.3 Prices

Prices are reviewed annually, in the form of a price list drawn up by CSTB. This revision is reported by CSTB.

If holders refuse to recognise the annual revision of fees, they shall be deemed to have voluntarily terminated the ratings for their products.