



## MINISTER OF ENVIRONMENT OF THE REPUBLIC OF LITHUANIA

### ORDER

#### ON THE AMENDMENT OF ORDER No. 631 OF 10 DECEMBER 2002 OF THE MINISTER OF ENVIRONMENT OF THE REPUBLIC OF LITHUANIA ON THE APPROVAL OF RULES ON MEASUREMENT AND VOLUME CALCULATION OF ROUNDWOOD AND TIMBER OF STANDING FORESTS

22 November 2016 No. D1-783

Vilnius

I hereby amend the Rules on Measurement and Volume Calculation of Roundwood and Timber of Standing Forests approved by Order No. 631 of 10 December 2002 of the Minister of Environment of the Republic of Lithuania “On the Approval of Rules on Measurement and Volume Calculation of Roundwood and Timber of Standing Forests” as follows:

1. I hereby supplement paragraph 2.55:

“2.55 Photogrammetric roundwood measurement method is the volume calculation of the assortment piles by measuring the length of piled roundwood employing instruments provided for in paragraph 5.4 of the Rules, and by taking photos of their diameter, scanning with electronic devices and processing the obtained information with specialised application. Photogrammetric roundwood measurement may be used in accepting the timber in a forest storage, after loading the timber to the vehicle or transporting it to its place of destination.”.

2. I hereby supplement paragraph 3.4<sup>1</sup>:

“3.4<sup>1</sup>. The application of photogrammetric roundwood measurement method for its volume calculation shall not result in the volume calculation error exceeding  $\pm 6$  percent where the amount of measured timber is below 10 solid cubic metres,  $\pm 4$  percent where the amount of measured timber is between 10 and 50 solid cubic metres, and  $\pm 3$  percent where the amount of measured timber is beyond 50 solid cubic metres.”.

3. I hereby amend paragraph 4.3 and set it forth as follows:

“4.3. Roundwood can be measured applying a piece-by-piece method where the length and diameter of each log are measured, a collective method where a pile, a bundle or a pack of timber is measured, and photogrammetric method where the volume of timber is calculated in accordance with paragraph 2.55 of these Rules:

4.3.1. A piece-by-piece method of measurement is applied to calculate the volume of stems, poles, sleeper blocks, plywood logs and medium and large sawlogs.

4.3.2. A collective method of measurement is applied to calculate the volume of pulpwood, lumber, wood panels, small sawlogs and wood billets.

4.3.3. A photogrammetric roundwood measurement method is applied to calculate the volume of sleeper blocks, plywood logs, small, medium and large sawlogs, thin poles, solid deciduous trees, short trees, lumber, pulpwood, wood panels, and wood billets, whose piles comply with conditions specified in paragraphs 7<sup>1</sup>.1 and 7<sup>1</sup>.2 of these Rules.

4.3.4. The volume of small sawlogs, thin poles, and solid deciduous short trees may be calculated applying piece-by-piece or collective methods of measurement.”.

4. I hereby amend paragraph 4.5 and set it forth as follows:

“4.5. Upon the agreement between the buyer and the seller, collective and photogrammetric roundwood measurement methods may in any case be replaced by a piece-by-piece method.”.

5. I hereby amend chapter 5 and set it forth as follows:

“5. METHODS, WAYS AND MEANS OF MEASUREMENT OF TIMBER

- 5.1. Standing trees are measured applying a direct way of measurement of tree diameters and a semi-direct way of measurement of tree heights.
- 5.2. The volume of standing trees is calculated by the tree diameter at the height of 1.3 m from the root collar and by the length of the tree stem from the root collar to the apical bud as well as by stem volume tables for the following means of measurement:
- 5.2.1. diameters are measured with simple or electronic callipers and a ruler of 1.3 m;
- 5.2.2. lengths of tree stems are measured with an altimeter. Altimeter scale shall be of 50 cm or more detailed gradation.
- 5.3. The volume of roundwood is calculated applying piece-by-piece, collective or photogrammetric measurement methods.
- 5.4. The application of piece-by-piece, collective or photogrammetric roundwood measurement methods involve the use of a steel tape, a measuring tape and a rigid metre made of durable material to manually measure the assortment length. Their lengths shall be such that the length of the entire assortment could be measured by a single try-on.
- 5.5. A piece-by-piece timber measurement method involves the use of a steel tape, a rigid metre made of durable material and simple or electronic callipers to calculate the diameter of logs.
- 5.6. Applying the collective timber measurement method, the pile length is determined by a measuring tape of at least 15 m and the height – by a telescopic pull or rigid height measuring gauge, a steel tape, a measuring tape made of durable material. Their lengths shall be such that the heights of the entire pile section could be measured by a single try-on.
- 5.7. In order to manually determine the length and diameter of timber, the means of measurement of pile heights:
- 5.7.1. shall be of 1 cm or more detailed gradation;
- 5.7.2. shall comply with the type of measuring instruments approved by metrologists according to the rules of state testing and type approval of measuring instruments and included in the State Register of Measuring Instruments. Their initial and periodic inspection must be carried out.
- 5.8. Applying a piece-by-piece roundwood measurement method, log measurement lines or other automated volume measurement instruments may be used. Measurements may be conducted by independent timber measuring specialists, buyers and sellers or their authorised persons. Log measurement lines or other automated volume measurement instruments must be registered in the State Metrology Service and they shall not exceed the measurement error specified in paragraph 3.4.
- 5.9. A photogrammetric roundwood measurement method is applied using the following measuring and other tools:
- 5.9.1. in order to determine the reference parameter, rigid rods made of durable material are used. Their length must comply with requirements of the application manufacturer. Length measuring instruments must be of 1 cm or more detailed gradation. Their inspection shall be carried out in accordance with paragraph 5.7.2 of these Rules;
- 5.9.2. in order to calculate the volume of assortments and piles, tablet computers, smart phones or other devices enabling to calculate the volume of timber pile with the help of specialised application are used. The shooting device shall have the resolution of at least 3 MP (megapixels) and not exceed the measurement error specified in paragraph 3.4<sup>1</sup>;
- 5.9.3. the specialised application installed in tablet computers, smart phones or other devices must include tables for calculation of timber volume established in the present Rules.”.
6. I hereby supplement chapter 7.1<sup>1</sup>:

#### „7<sup>1</sup>. CALCULATION OF ROUNDWOOD VOLUME APPLYING THE PHOTOGRAMMETRIC ROUNDWOOD MEASUREMENT METHOD

7<sup>1</sup>.1. Photogrammetric roundwood measurement method may be applied to assess bundles of roundwood loaded in timber boxes or in piles stored on pallets in a flat open area with aligned ends of all assortments ( $\pm 15$  cm).

7<sup>1</sup>.2. Photogrammetric roundwood measurement method may be applied only to measure sleeper blocks, plywood logs, medium and large sawlogs piled with their top-ends on one side.

7<sup>1</sup>.3. The volume of small sawlogs, thin poles, solid deciduous short trees, lumber, pulpwood, wood panels and timber piles is calculated applying a photogrammetric measurement method, taking photos and scanning:

7<sup>1</sup>.3.1. from one side those piles where bottom-ends and top-ends are equal in quantity;

7<sup>1</sup>.3.2. from both sides those piles where the imbalance of bottom-ends and top-ends is visually apparent but not exceeding 30 percent. The pile volume is calculated taking the average result of two measurements.

7<sup>1</sup>.4. Pile measurement sequence:

7<sup>1</sup>.4.1. a rigid length/diameter measurement etalon is fixed to the pile cross-section;

7<sup>1</sup>.4.2. the length of the piled roundwood assortment is measured;

7<sup>1</sup>.4.3. a pile is photographed and scanned by electronic devices;

7<sup>1</sup>.4.4. in case of any visual inconsistencies in the photo and the actual pile, the correction of any errors observed in the piled roundwood assortment shall be manually performed in the measuring device;

7<sup>1</sup>.4.5. when applying the photogrammetric roundwood measurement method for the calculation of timber, the volume of assortment shall be calculated in accordance with relevant tables of calculation of timber volume established in the present Rules and installed in the application and the wood is accepted following the Roundwood Accounting Description approved by Order No. D1-672 of 12 December 2007 of the Minister of Environment of the Republic of Lithuania “On the Approval of Roundwood Accounting Description”. ”

Acting as Minister of Environment

Kęstutis Trečiokas