

Comparison of current Australian Standard with updated ISO standard

Current Australian Standard	AS 3778.6.7	Measurement of water in open channels Part 6.7: Measuring devices, instruments and equipment- Ultrasonic (acoustic) velocity meters
Updated ISO Standard	ISO 6416 : 2007	Hydrometry- Measurement of discharge by ultrasonic transit time (time of flight) method

High-level comment on differences

ISO 6418 was withdrawn and replaced in 1992 with ISO 6416 with reviews in 2004 and 2017 (current). The current AS 3778.6.7 is outdated (1992) and requires a complete review. The Author overwhelmingly recommends the ISO be reviewed and adopted.

The ISO represents current industry practices far better than the outdated AS.

Reviewer recommendation

I recommend that the technical committee withdraw AS 3778.6.7 and adopt ISO 6416:2017 in full to replace both AS 3778.3.7 and AS 3778.6.7

(This recommendation was reached following further discussion with Working Group members)

<i>options</i>
<ul style="list-style-type: none"> • <i>accept the updated ISO in full to replace current AS (simplest option!)</i>
<ul style="list-style-type: none"> • <i>reject the updated ISO and withdraw the current AS (in cases where the update is not appropriate for Australian practice)</i>
<ul style="list-style-type: none"> • <i>reject the updated ISO and re-confirm the current AS without change (an alternative option in cases where the update is not appropriate for Australian practice)</i>
<ul style="list-style-type: none"> • <i>further work required to adapt the ISO for an updated AS (non-preferred option, exceptional cases only)</i>

Detailed summary of differences

The table below outlines in more detail a summary of the differences between the current Australian Standard under review and the relevant updated ISO standard and includes reviewer comment where relevant.

Column 1: Identifies the number and name of the section in the current Australian Standard

Column 2: Classification of the change for that section. Classified as either:

- **No change (green shading)** – The updated ISO is the same as the current Australian Standard.
- **Minor change (blue shading)** – Changes that have minimal impact on the outcome, including
 - minor format, style or heading changes
 - minor additions, removals or changes to a few words or clauses
 - addition or exclusion of more detailed explanation
 - very minor changes to steps or processes.
- **Significant change (orange shading)** – Changes that have a moderate to major impact on the outcome, such as
 - Changes to requirements
 - Significant changes to calculations, steps or processes.

Column 3: More detail to describe the change, and comment from the reviewer (enough detail for the consideration of AHA and WaMSTeC members in their review).

Text colour is used in this column as follows:

- **Black text** – More detailed explanation of the changes and reviewer comment. **Specific reviewer comment on the changes highlighted in yellow.**
- **Blue text** – reference to information included in the updated ISO that is not in the current Australian Standard
- **Red text** – reference to information included in the current Australian Standard that is not in the updated ISO.

Section (AS section number)	Classification of change AS to ISO	More detail and comment on changes in the updated ISO
1 Scope, 2 References, 3 Definitions	Adopt or review ISO	AS makes little to no current or relevant references to current practices or documents
4 Definitions	N/A	Not in ISO
(ISO 4) Applications: types of applications and attributes and limitations	Adopt or review ISO	AS has no comments on applications
(ISO 5) Method of measurement	Adopt or review ISO	AS makes no reference to the measurement of
5 General	Remove	Brief and moved within sections ISO 7, 11, 12, 13 & 14
6 Principle of operation	Adopt or review ISO	Information is similar however needs elaboration and standardizing between the documents
7 Characteristics of sound in water	Adopt or review ISO	Combined into section 6 of ISO
8 Instrument performance criteria	Adopt or review ISO	Combined into ISO 13.9 under section 13 Gauging station equipment
9 Site selection	Adopt or review ISO	Brief and requires elaboration. Section ISO 10 review both and combine
10 Instrument Installation	Adopt or review ISO	Extremely brief. ISO 13 explains the requirements and principles very well
11 Operational manuals	Remove	Remove

Section (AS section number)	Classification of change AS to ISO	More detail and comment on changes in the updated ISO
12 Calibrations	Adopt or review ISO	Very ambiguous in not to current industry standards, review ISO 9 system verification and calibration.
13 Uncertainty and systematic errors	Adopt or review ISO	Not current industry standard, review ISO 14 Measurement of uncertainty