

INTERNATIONAL
RECOMMENDATION

**Amendment 2014 to
OIML R 137-1 & 2**

Edition 2012 (E)

Gas meters

Part 1: Metrological and technical requirements

Part 2: Metrological controls and performance tests

Compteurs de gaz

Partie 1: Exigences métrologiques et techniques

Partie 2: Contrôles métrologiques et essais de performance



ORGANISATION INTERNATIONALE
DE MÉTROLOGIE LÉGALE

INTERNATIONAL ORGANIZATION
OF LEGAL METROLOGY

12.5 TYPE EVALUATION PROCEDURES

12.5.1 Software evaluation

The software evaluation procedure concerns evaluation of compliance to the requirements as described in part 2 Annex I and comprises a combination of analysis and validation methods and tests as shown in Table 6. The explanation of the abbreviations used and the relation to the methods as described in detail in OIML D 31 is shown in Table 7.

Table 1 Software validation procedures applicable for verification of compliance

Requirement		Evaluation procedure
I.1.1	Software identification	AD + VF _{TSw}
I.1.2	Correctness of algorithms	AD + VF _{TSw}
I.1.3	Fraud protection	AD + VF _{TSw} + DFA/CIWT/SMT ¹
	Parameter protection	AD + VF _{TSw} + DFA/CIWT/SMT ¹
I.2.1	Separation of electronic devices and sub-assemblies	AD
I.2.2	Separation of software parts	AD
I.2.3	Storage of data, transmission via communication systems	AD + VF _{TSw} + CIWT/SMT ¹
I.2.3.1	Data protection with respect to time of measurement	AD + VF _{TSw} + SMT ¹
I.2.4	Automatic storage	AD + VF _{TSw}
I.2.3.4	Transmission delay	AD + VF _{TSw}
I.2.3.5	Transmission interruption	AD + VF _{TSw}
	Time stamp	AD + VF _{TSw}

Table 2 Cross references of evaluation procedures to those described in Annex E

Abbreviation	Description	Related Annex E and OIML D 31:2008 Clause
AD	Analysis of the documentation and validation of the design	Annex E (E1) → D 31 (6.3.2.1)
VFTM	Validation by functional testing of metrological functions	Annex E (E2) → D 31 (6.3.2.2)
VF _{TSw}	Validation by functional testing of software functions	Annex E (E3) → D 31 (6.3.2.3)
DFA ¹	Metrological data flow analysis	Annex E (E4) → D 31 (6.3.2.4)
CIWT ¹	Code inspection and walkthrough	Annex E (E5) → D 31 (6.3.2.5)
SMT ¹	Software module testing	Annex E (E6) → D 31 (6.3.2.6)

¹⁾ If one of the three cases below applies, the execution of the evaluation methods DFA, CIWT and SMT is not necessary:

- Case 1: no data transmission interface is incorporated in the gas meter, or
- Case 2: a transmission interface is incorporated but only provides measurement data output from the gas meter, or
- Case 3: no transmission of measurement data in open systems is possible.