

ISO 20682:2026-02 (E)

Autonomous underwater vehicles - Risk and reliability

Contents		Page
Foreword		iv
Introduction		v
1 Scope		1
2 Normative references		1
3 Terms and definitions		1
4 Abbreviated terms		4
5 Typical modules of AUVs		4
5.1 General		4
5.2 Control		4
5.3 Sensors		4
5.4 Structure		5
5.5 Mechanical moving elements		5
5.6 Power		5
5.7 Navigation and communication		5
5.8 Product identification and traceability		6
6 Digital mission engineering		6
6.1 General		6
6.2 Extreme mission		6
6.3 Simulation, verification and validation		7
6.3.1 General		7
6.3.2 Virtual testing		7
6.3.3 Maximum allowable uncertainties		7
7 Fault tree analysis		8
7.1 General		8
7.2 Markov chain: state transition		9
8 Strategy for risk assessment and risk reduction		10
8.1 General		10
8.2 Communication for safety		11
8.3 Hardware controls		11
8.4 Judgment		11
8.5 Reasonableness check		11
8.6 Search, rescue and recovery		12
8.7 Signal filtering		12
8.8 Dependability engineering		12
8.9 Safety case		12
Annex A (informative) Reliability engineering mathematical background		14
Annex B (informative) Design, verification and testing philosophy for AUVs		18
Annex C (informative) Safety of autonomous land vehicles and applications for AUVs		20
Bibliography		21