

ISO 16001:2017-11 (E)

Earth-moving machinery - Object detection systems and visibility aids - Performance requirements and tests

| Contents | Page |
|--|-------------|
| Foreword | iv |
| Introduction | v |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms and definitions | 1 |
| 4 Performance requirements and tests | 3 |
| 4.1 General requirements | 3 |
| 4.1.1 Test to determine the detection zone boundary | 3 |
| 4.1.2 Test body requirements | 3 |
| 4.1.3 Evaluation of test results | 3 |
| 4.2 Location and fixing of ODS and VA components | 3 |
| 4.3 Operator station components | 4 |
| 4.3.1 Location and images of monitor | 4 |
| 4.3.2 Warning devices for ODS | 5 |
| 4.4 System activation and initial check | 6 |
| 4.4.1 System activation on engine start | 6 |
| 4.4.2 System activation from stand-by mode | 6 |
| 4.5 ODS detection time | 6 |
| 4.6 Continuous self-checking | 7 |
| 4.7 Warning device disablement for ODS | 7 |
| 4.8 Electromagnetic compatibility and physical environment operating conditions | 7 |
| 5 Marking and identification | 7 |
| 6 Operator's manual | 8 |
| 6.1 Operator's manual | 8 |
| 6.2 Other information documents | 8 |
| Annex A (informative) Selection of ODSs and VAs | 9 |
| Annex B (normative) Test procedure for closed-circuit television (CCTV) systems -- Additional performance requirements and tests | 17 |
| Annex C (normative) Test procedure for radar sensors | 23 |
| Annex D (normative) Test procedure for ultrasonic detection systems | 28 |
| Annex E (normative) Test procedure for ultrasonic transponder systems | 36 |
| Annex F (normative) Test procedure for electromagnetic (EM) signal transceiver systems | 46 |
| Annex G (normative) Particular performance requirements and tests for CCTV system with surround view | 53 |
| Annex H (normative) Particular performance requirements and tests for visual ODS | 55 |

| | |
|---|-----------|
| Annex I (normative) Test procedure for vision systems based on morphological recognition | 62 |
| Bibliography | 74 |