ISO 21815-3:2023-08 (E)

Earth-moving machinery - Collision warning and avoidance - Part 3: Risk area and risk level for forward/reverse motion

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 1

4 Performance requirements 7
4.1 General requirements 7
4.2 Calculating CxS distance 7
4.2.1 Forward/reverse motion 7
4.2.2 Collision risk area reduction 7
4.3 Determination of collision risk level 8
4.4 Collision warning and collision avoidance action 8
4.5 CxS action and expected machine speed behaviour 8
4.5.1 General 8
4.5.2 Requirement of D0 8
4.5.3 CxS configuration 8
4.6 Collision warning system 9
4.6.1 System functionality 9
4.6.2 Discontinuation of warning signal and reactivation 9
4.6.3 Human interface requirements 9
4.7 Collision avoidance system 10
4.7.1 System functionality 10
4.7.2 Discontinuation of collision avoidance action and reactivation 10
4.7.3 Intervention indicator 11

5 Time and distance calculation guidance 11
5.1 General 11
5.2 CxS detection, determination and communication 11
5.3 Action time (TCD) and action distance (DCD) 11
5.4 CWS action time (TCD) 12

6 Information for use 12
6.1 General 12
6.2 Operator's manual 12

Annex A (normative) Determining of collision risk levels -- forward/reverse motion 13

Annex B (normative) Limitations of use of CxS 16

Annex C (informative) Example calculation CxS distance for surface vehicles 22

Annex D (informative) Example calculations of CxS distance for underground mining machine 24

Annex E (informative) Estimating the path 34

Annex F (informative)AnapproachfordeterminingCxSconfiguration 38

Annex G (informative) Types of interventional collision avoidance actions 44

Bibliography 48