DIN EN 13309:2010-12 (E)

Construction machinery - Electromagnetic compatibility of machines with internal power supply

Contents

Page

Foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 7

4 Requirements 10
4.1 General requirements 10
4.2 Specifications concerning broadband electromagnetic emission radiated from construction machinery 10
4.3 Specifications concerning narrowband electromagnetic emission radiated from construction machinery 11
4.4 Specifications concerning the immunity of construction machinery to electromagnetic radiation 11
4.5 Specifications concerning broadband electromagnetic emissions radiated from ESAs 12
4.6 Specifications concerning narrowband electromagnetic emissions radiated from ESAs 12
4.7 Specifications concerning the immunity of ESAs to electromagnetic radiation 13
4.8 Electrostatic discharge (ESD) 13
4.9 Conducted transients 14

5 Exceptions 16

6 Test report 17

Annex A (normative) Reference limits 18

Annex B (normative) Method of measurement of radiated broadband electromagnetic emissions from construction machinery 25

Annex C (normative) Method of measurement of radiated narrowband electromagnetic emissions from construction machinery 30

Annex D (normative) Method of measurement of radiated broadband electromagnetic emissions from electrical/electronic sub-assemblies 33

Annex E (normative) Method of measurement of radiated narrowband electromagnetic emissions from electrical/electronic sub-assemblies 39

Annex F (informative) A Guideline for selecting the test specimen configuration 42

Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2004/108/EC 44

Bibliography 45

Figures Figure A.1 -- Construction machinery broadband reference limits for a construction machinery-to- antenna distance of 10 m 18

Figure A.2 -- Construction machinery broadband reference limits for a construction machinery-to-antenna distance of 3 m 19

Figure A.3 -- Construction machinery narrowband reference limits for a construction machinery-to-antenna distance of 10 m 20

Figure A.4 -- Construction machinery narrowband reference limits for a construction machinery-to-antenna distance of 3 m 21

Figure A.5 -- ESAs broadband reference limits 22

Figure A.6 -- ESAs narrowband reference limits 23

Figure A.7 -- Method of determination of conformance of radiated disturbance 24

Figure B.1 -- Construction machinery - Test area 28

Figure B.2 -- Position of antenna relative to construction machinery 29

Figure D.1 -- ESA test area boundary 36

Figure D.2 -- Coupled broadband electromagnetic emissions from ESAs - Test Layout (General plan view) 37

Figure D.3 -- Coupled broadband electromagnetic emissions from ESAs - View on test bench plane of longitudinal symmetry 38

Tables Table 1 -- Check pulse in 12 V and 24 V onboard systems 15

Table 2 -- Application of test pulses 15

Table 3 -- Functional status 16