E DIN EN 17019:2016-09 (E)

Weigh-in-Motion of road vehicles - Requirements; English version FprEN 17019:2016

Contents

Page

European foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms, definitions, symbols and abbreviations 7
3.1 Terms and definitions taken from the Vocabulary of International Metrology 7
3.2 Specific statistical and metrological terms and definitions 10
3.3 Terms and definitions related to vehicles 11
3.4 Terms and definitions related to WIM systems 13
3.5 List of symbols and abbreviations 14

4 Site selection criteria 15
4.1 Road geometry 15
4.2 Pavement characteristics 15
4.3 WIM site classes (not for B-WIM) 15
4.4 Particular requirements for bridges 17

5 Operating conditions and environmental requirements 18
5.1 General conditions 18
5.2 Sensors requirements 19
5.3 Electronics requirements 20

6 Accuracy class tolerances with respect to the weights 20
6.1 General clauses - Detailed procedure 20
6.2 General - Simplified procedure 21
6.3 Accuracy classes 21
6.4 Other tolerances 24
6.5 Reference gross weights and axle loads measured statically 24

7 On-site system checks and calibration 25
7.1 General clauses 25
7.2 Definitions of test conditions 25
7.3 Minimum required test conditions 26
7.4 Calibration methods 26

8 Type (model) approval 29
8.1 General 29
8.2 Choice of test site 29
8.3 Installation and pre-calibration of the system 29
8.4 Test plan 30
8.5 Reference static loads and weights 30
8.6 Test analysis and report 31

9 Initial and in-service verifications 31
9.1 Initial verification 31
9.2 In-service verification 31

10 Procedure to check the accuracy of a WIM system by testing 32

10.1 General rules - Detailed procedure ... 32
10.2 General rules - Simplified procedure ... 32

E DIN EN 17019:2016-09 - Entwurf - FprEN 17019:2016 (E) 10.3 Test plans - Detailed procedure ... 32

10.4 Test plans - Simplified procedure ... 33
10.5 Minimum required confidence levels - Detailed procedure ... 33
10.6 Minimum required confidence levels - Simplified procedure ... 34
10.7 Test results analysis - Detailed procedure ... 34
10.8 Test results analysis - Simplified procedure ... 38

11 Data storage and transmission ... 38
11.1 Data storage ... 38
11.2 Data transmission ... 40
11.3 Operating ranges and information ... 40

Annex A (informative) Comparison of this Standard and the OIML R 134-1 International Recommendation ... 41

A.1 General ... 41
A.2 Scope and application ... 41
A.3 Detailed comparison of the OIML R 134-1 and this EN standard scope and requirements 42

Annex B (informative) Standard test plans and simplified acceptance procedures ... 44

B.1 Examples of standardized test plans ... 44
B.2 Charts for acceptance tests ... 47
B.3 Acceptance tests: simplified procedures ... 48

Annex C (informative) Calibration methods ... 50

Annex D (informative) Standard results' format and computer tools for accuracy assessment, and implementation (example) ... 53

D.1 Standard results' format and computer tools for accuracy assessment ... 53
D.2 Example of implementation of the checking procedures ... 54

Annex E (informative) Comments ... 61

E.1 Scope ... 61
E.2 Terms and definitions ... 61
E.3 User and performance requirements ... 62
E.4 Criteria for the choice of WIM sites ... 64
E.5 Operating conditions and environmental requirements ... 68
E.6 Accuracy class tolerances with respect to the weight ... 68
E.7 On-site system checks and calibration by testing ... 69
E.8 Type (model) approval of a WIM system ... 71
E.9 Procedure to check the accuracy of a WIM system ... 72
E.10 Data storage and transmission ... 72
E.11 COST 323 vehicle classification ... 73

Bibliography ... 74