

DIN EN 1789:2014-12 (E)

Medical vehicles and their equipment - Road ambulances (includes Amendment A2:2014)

	Contents	Page
Foreword.....		5
A₂ Introduction A₂		6
1 Scope		7
2 Normative references		7
3 Terms and definitions		9
4 Requirements		11
4.1 General requirements		11
4.1.1 General.....		11
4.1.2 Maximum overall dimensions.....		11
4.1.3 Wheel arch clearance		11
4.2 A₂ Performance-braking and acceleration A₂		11
4.2.1 Acceleration		11
4.2.2 Braking.....		12
4.2.3 Safety system.....		12
4.3 Electrical requirements		12
4.3.1 General.....		12
4.3.2 Electromagnetic compatibility (EMC) – Communication equipment		12
4.3.3 Battery and alternator		12
4.3.4 Electrical installation		13
4.3.5 Visual and audible warning system		14
4.4 Vehicle body.....		14
4.4.1 Fire safety		14
4.4.2 Driver's seat configuration		14
4.4.3 Minimum loading capacity.....		14
4.4.4 Bulkhead.....		15
4.4.5 Openings (doors, windows, emergency exits)		16
4.4.6 Loading area.....		17
4.5 Patient's compartment		18
4.5.1 General.....		18
4.5.2 Patient's compartment dimensions		19
4.5.3 Patient and attendant seating.....		23
4.5.4 Ventilation and anaesthetic gas scavenging systems.....		24
4.5.5 Temperature system.....		25
4.5.6 Interior lighting.....		25
4.5.7 Interior noise level		26
4.5.8 Holding system for infusion		26
4.5.9 Mounting systems		26
4.5.10 Mass reserve		27
5 Testing		27
5.1 General.....		27
5.2 Testing of the interior noise level		27
5.2.1 A₂ Specific measurement conditions A₂		27
5.2.2 Measurements.....		28
5.2.3 Establishment of compliance		29
5.3 Testing of the acceleration		30
5.4 Testing of maintain systems and fixations of the equipment in the patient's compartment		30
5.4.1 General.....		30

5.4.2	Testing of the stretcher fixations on the vehicle floor	32
5.4.3	Testing of the medical devices fixations	33
5.4.4	Testing of furniture.....	33
5.4.5	Test procedure.....	33
5.5	[A₂] Testing of rounded edges and radius inside the patient's compartment [A₂]	34
5.5.1	[A₂] Testing of rounded edges [A₂]	34
5.5.2	Testing of rounded edges and radius inside the patient's compartment.....	35
5.6	Procedure to verify the patient's compartment specifications	35
5.7	Procedure to verify the loading area specifications	36
5.7.1	General	36
5.7.2	Procedure to verify the loading angle of 16°	36
5.8	Procedure to verify the dimensions of the patient's compartment.....	37
5.8.1	Type A and B road ambulances	37
5.8.2	Type C road ambulances	37
5.9	Procedure to verify the seats dimensions of the patient's compartment	38
5.10	Testing of the ventilation system	39
5.11	Testing of the heating system.....	39
5.12	Testing of the cooling system.....	40
5.12.1	Test procedure.....	40
5.12.2	Testing of independent air conditioning system	40
5.13	Testing of interior lighting	41
5.14	Testing of infusion holding system.....	41
6	Medical devices	41
6.1	Provision of medical devices	41
6.2	Medical devices storage	41
6.3	Requirements for medical devices	42
6.3.1	General	42
6.3.2	Temperature	42
6.3.3	Humidity and ingress of liquids.....	42
6.3.4	Mechanical strength.....	42
6.3.5	Fixation of devices	43
6.3.6	Electrical safety	43
6.3.7	User interface.....	43
6.3.8	Gas installation	43
6.3.9	Marking and instructions.....	45
6.3.10	Maintenance	45
6.4	Mechanical strength – Test methods for medical devices for use in road ambulances	45
6.4.1	Vibration and bump test	45
6.4.2	Free fall	46
6.5	List of equipment.....	46
7	Conformity assessment.....	53
8	Requirements to be met for a Certificate of Compliance	53
Annex A	(informative) [A₂] Test summary [A₂]	55
Annex B	(informative) [A₂] Definition of ambulance body styles [A₂]	56
B.1	General	56
B.2	Van based Ambulance	56
B.3	Fully independent box body	57
Annex C	(informative) [A₂] Recognition [A₂]	58
C.1	Recognition and visibility of ambulances.....	58
C.2	Recognition of personnel	58

Annex ZA (informative) A₁ A₂ Relationship between this European Standard and the Essential Requirements of EC Directive 93/42/EEC on Medical Devices and Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles A₂	59
Bibliography	60