

Contents

Page

European foreword.....	4
1 Scope.....	5
2 Normative References.....	5
3 Terms and definitions.....	7
4 Symbols and abbreviations.....	9
5 Requirements.....	9
5.1 General requirements of the train braking system.....	9
5.2 General safety requirements.....	9
5.2.1 Design principles.....	9
5.2.2 Fire protection.....	11
5.2.3 Environmental condition.....	11
5.3 Requirements of the main brake system.....	11
5.3.1 General requirements.....	11
5.3.2 General functions on train level.....	12
5.3.3 Additional requirements at the vehicle level.....	18
5.4 "EN-UIC" brake system - based on air brake system.....	19
5.4.1 Foreword.....	19
5.4.2 General architecture.....	20
5.4.3 Additional brake systems.....	21
5.4.4 Functional requirements at train level.....	21
5.4.5 Design requirements.....	35
5.4.6 Brake functions at vehicle level.....	36
5.5 Direct EP brake control.....	41
5.6 Additional brake systems.....	41
5.6.1 Dynamic brakes.....	41
5.6.2 Direct brake.....	44
5.6.3 Magnetic Track brake.....	46
5.7 Brake management.....	46
5.7.1 Brake blending at vehicle level.....	46
5.7.2 Manual mode.....	46
5.7.3 Brake blending at train level.....	46
5.7.4 Jerk / ramps.....	47
5.8 Wheel slide protection.....	48
5.9 Compressed air supply.....	48
5.9.1 General requirements.....	48
5.9.2 Capacity.....	49
5.9.3 Air quality.....	49
5.10 Enhancement of wheel/rail adhesion.....	49
6 Performances.....	50
6.1 General aspects.....	50
6.2 Performance calculation.....	51
6.2.1 General.....	51
6.2.2 Calculations for nominal mode.....	52

6.2.3	Equivalent response and delay time.....	52
6.2.4	Calculations for degraded mode	53
6.2.5	Calculations for degraded conditions	53
6.3	Relevant load conditions	53
6.3.1	Locomotives.....	53
6.3.2	Coaches.....	53
6.3.3	Wagons	54
6.4	Service braking.....	54
6.5	Thermal capacity	54
6.6	Adhesion	55
6.6.1	General requirements.....	55
6.6.2	Emergency brake application	55
6.6.3	Service brake application.....	55
6.7	Parking brake performance	56
Annex A (normative) Vehicle requirements		57
Annex B (informative) Train related brake performance categories.....		59
Annex C (informative) Explanation of “proven design” concept		63
Annex D (informative) Corresponding standards EN – UIC.....		64
Annex E (normative) Brake pipe pressure control system		66
E.1	General requirements.....	66
E.2	Release position	67
E.3	Service brake application	68
E.4	Emergency brake application	68
E.5	Overcharge function	69
E.6	Quick release function	70
Annex F (normative) Venting performance of Emergency Valves		74
F.1	Purpose	74
F.2	General rules	74
F.3	Test procedure	74
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of Directive (EU) 2016/797 aimed to be covered.....		76
Bibliography		80