

DIN EN 14750-2:2006-08 (E)

Railway applications - Air conditioning for urban and suburban rolling stock - Part 2: Type tests

| Contents | Page |
|---|------|
| Foreword | 4 |
| Introduction | 5 |
| 1 Scope | 6 |
| 2 Normative references | 6 |
| 3 Terms and definitions | 6 |
| 4 Test classification | 6 |
| 5 Preliminary verifications | 7 |
| 6 Comfort tests | 7 |
| 6.1 Air movement | 7 |
| 6.1.1 General remarks | 7 |
| 6.1.2 Air flow rates | 7 |
| 6.1.3 Pressure differentials (visualisation) | 7 |
| 6.2 Critical air speed | 7 |
| 6.3 Measurement of air speeds | 7 |
| 7 Climatic tests | 8 |
| 7.1 General remarks | 8 |
| 7.2 Preheating test | 8 |
| 7.2.1 Test level TL1 | 8 |
| 7.2.2 Test level TL2 | 8 |
| 7.3 Pre-cooling test | 8 |
| 7.3.1 Test level TL1 | 8 |
| 7.3.2 Test level TL2 | 8 |
| 7.4 Regulation tests | 9 |
| 7.5 Tests with door open/closed | 9 |
| 8 Tests at extreme exterior operating conditions | 9 |
| 9 Complementary tests | 9 |
| 9.1 Determination of the coefficient k | 9 |
| 9.1.1 Purpose of the test | 9 |
| 9.1.2 Definition | 9 |
| 9.1.3 Procedure | 10 |
| 9.2 Thermography | 10 |
| 9.3 Noise emission | 10 |
| 9.4 Vibration generation | 10 |
| 10 Methods of measurement - Measuring instruments | 10 |
| 10.1 General remarks | 10 |
| 10.2 Temperatures | 11 |
| 10.2.1 Air temperature | 11 |
| 10.2.2 Surface temperatures | 11 |
| 10.3 Relative humidity | 11 |
| 10.4 Air speed | 11 |

| | | |
|----------------------------|---|-----------|
| 10.5 | Airflow rate | 11 |
| 10.6 | Simulated speed of the vehicle | 11 |
| 10.7 | Equivalent solar load | 11 |
| 10.8 | Energy consumption and power rating | 11 |
| 11 | Characteristics of the test equipment | 11 |
| 11.1 | General remarks | 11 |
| 11.2 | Occupation | 12 |
| 11.3 | Equivalent solar load | 12 |
| 11.3.1 | Solar load calculation | 12 |
| 11.3.2 | Window area | 12 |
| 11.3.3 | Wall area | 13 |
| 11.3.4 | Roof area | 13 |
| 12 | Distribution of measuring points | 13 |
| 12.1 | General | 13 |
| 12.2 | Distribution of sensors in the vehicle | 14 |
| 12.2.1 | Comfort envelope temperature measurement points | 14 |
| 12.2.2 | Surface temperature measurement points | 14 |
| 12.2.3 | Supply air outlet temperature measurement points | 14 |
| 12.2.4 | Comfort envelope air speed measurement points | 14 |
| 12.2.5 | Comfort envelope relative humidity measurement points | 14 |
| 12.3 | Climatic chamber sensor distribution | 14 |
| Annex A (normative) | Test programme for TL1 | 15 |
| Annex B (normative) | Test programme for TL2 | 17 |
| Annex C (normative) | Equivalent solar load | 22 |
| Annex D (normative) | Location of the measuring points used for the determination of the mean interior temperature (T_{im}), the determination of the range of extreme interior temperatures and the relative humidity in the comfort envelopes and local annexes | 23 |
| D.1 | Vehicles without articulation | 23 |
| D.2 | Vehicles with articulation | 24 |
| Annex E (normative) | Location of the measuring points used for the determination of surface temperatures | 25 |
| Annex F (normative) | Location of sensors | 26 |