



EMC Standards

Example of experiences

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EMC experiences

We have extensive experiences for various EMC standards for the locomotive, automotive, light and heavy industry. These are mostly based on the BSEN series of standards and the differences between industries are the test severity levels. For example, the radiated immunity tests for the rail and automotive are 20V/m and 60V/m respectively.

We also have numerous proven EMC protection techniques.

Example of EMC standards (light and heavy industries)

European Commission Directive: 89/336/EEC and 72/23/EEC

1. EN 55022: 1998 Emissions.
2. EN 55024: 1998 Immunity
3. EN 61000-4-2: 1988 ESD
4. EN 61000-4-3: 1998 RF Radiated Fields
5. EN 61000-4-4: 1995 EFT/Burst
6. EN 61000-4-5: 1995 Surges
7. EN 61000-4-6: 1996 RF Conducted Fields
8. EN 61000-4-8: 1993 Power Frequency Magnetic Field
9. EN 61000-4-11: 1994 Supply Dips and Variations

Example of London Underground Locomotive standards.

1. Visual Inspection 1 (RIA 10.5.1)
2. Performance test 1 (RIA 13:10.5.2)
3. Dry heat test (RIA 13:10.5.4)
4. Low temperature test (RIA 13:10.5.6)
5. Surge and transient test (RIA 13:10.5.7)
6. Transient Burst test (EN 61000-4-4)
7. Radio frequency interference test
BS EN 50121-3-2: 2000, Railway applications Electromagnetic compatibility.
BS EN 50155: 1996 Railway applications Electronic equipment used on rolling stock.
8. Magnetic field test
G 6621 A1 January 1999, Clause 10.5.10 Magnetic Field Test.
10. Shock and Vibration test (BS EN 61373: 1999)
11. Degrees of protection (BS EN 60529: 1992)
12. Insulation test and earth continuity (RIA 13)

Example of Automotive standards

1. Electrical disturbance by conduction and coupling (BS AU 243)
2. The Approval Of Vehicles With Regard To Electromagnetic Compatibility. Addendum Regulation No.10, Revision 2; E/ECE/324, E/ECE/TRANS/505.