

## L-com Incorporated RoHS Specification

**SCOPE:** This specification establishes the requirements for complying with the European Union's Directive 2002/95/EC, Restrictions of Hazardous Substances in Electrical and Electronic Equipment ("RoHS") and similar regulations that may be adopted by other countries. The RoHS Directive restricts lead, mercury, cadmium, Hexavalent chromium, Polybrominated Biphenyl, Polybrominated diphenyl ethers in certain electrical and electronic equipment, except for certain maximum concentration levels in homogeneous materials. This specification applies to all materials, parts, components and/or products specified or distributed by L-com.

**APPLICABILITY:** All suppliers of raw materials and/or finished goods unless otherwise agreed upon in advance.

### **1.0 DEFINITIONS**

"Homogeneous material": A material that cannot be mechanically disjointed into different materials. The term "homogeneous" means "of uniform composition throughout.

#### Examples

- A plastic cover is a "homogeneous material" if it consists of one type of plastic that is not coated with or has attached to it or inside it any other kinds of materials. In this case the limit values of the directive would apply to the plastic.
- An electric cable that consists of metal wires surrounded by non-metallic insulation materials is an example of a "non homogeneous material" because the different materials could be separated by mechanical processes. In this case the limit values of the directive would apply to each of the separated materials individually.
- A semi-conductor package contains many homogeneous materials which include: plastic molding material, tin electroplating coatings on the lead frame, the lead frame alloy and gold-bonding wires.

"Mechanically disjointed": Means that materials can be, in principle, separated by mechanical actions such as for example: unscrewing, cutting, crushing, grinding and abrasive processes.

"RoHS": Refers to the European Union's Directive 2002/95/EC on the Restriction of Hazardous Substances in Electrical and Electronic Equipment, adopted February 2003

"RoHS Compliant": Material, part, product, or component that meets the RoHS requirements

**2.0 REQUIREMENTS:**

- 2.1 All materials, parts, products and components covered by this specification may not contain more than the Table 1 maximum concentration levels of RoHS restricted substances in any "homogeneous materials." It is possible that L-com, Inc. may set lower thresholds. In case of conflicts with product specifications or other written L-com, Inc. requirements, the more restrictive specification or requirement shall be followed.

**Table 1. Maximum Concentration Values**

Substance (or compound containing this substance)	Maximum Concentration Level		
Lead (Pb)	.1% by weight	1000 ppm	1000 mg/kg
Mercury (Hg)	.1% by weight	1000 ppm	1000 mg/kg
Hexavalent Chromium (Cr+6)	.1% by weight	1000 ppm	1000 mg/kg
Cadmium (Cd)	.01% by weight	100 ppm	100 mg/kg
Polybrominated Biphenyl (PBB) flame retardants	.1% by weight	1000 ppm	1000 mg/kg
Polybrominated diphenyl ether (PBDE) flame retardants	.1% by weight	1000 ppm	1000 mg/kg

These levels apply to the substance as well as any compounds containing the substance.

**3.0 VERIFICATION OF COMPLIANCE:**

- 3.1 L-com, Inc. suppliers should be prepared to meet RoHS requirements by no later than June 1, 2005, so that L-com, Inc. can develop RoHS compliant products with sufficient lead time for L-com, Inc. and its customers to place products on the European markets by July 2006. L-com, Inc. may specify earlier compliance deadlines for suppliers, in order to meet customer demands.
- 3.2 Suppliers must maintain records on RoHS compliance for three years, including all analytical test data regarding RoHS substances and any test data or RoHS certifications provided to suppliers by their suppliers. At L-com, Inc.'s request, suppliers must make these records available to L-com, Inc.

**4.0 REFERENCES:**

RoHS Directive: Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, Official Journal of the European Union 13.2.2003

Directive 2003/11/EC Relating to Amendments to Restrictions on the Marketing and Use of Certain Dangerous Substances and Preparations (pentabromodiphenyl ether, octabromodiphenyl ether), Official Journal of the European Union 15.2.2003

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