# Motorola's Response to

## STAKEHOLDER CONSULTATION ON ADAPTATION TO SCIENTIFIC AND TECHNICAL PROGRESS UNDER DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT FOR THE PURPOSE OF A POSSIBLE AMENDMENT OF THE ANNEX

**Motorola is responding to Item 3 in Section 4, which reads:**

**3. Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications (with a view to setting a specific time limit for this exemption)**
- Do feasible substitutes currently exist in an industrial and/or commercial scale?
- Do any restrictions apply to such substitutes?
- What are the costs and benefits and advantages and disadvantages of such substitutes?

**Motorola's response is as follows:**

**1. Do feasible substitutes currently exist in an industrial and/or commercial scale?**

As outlined below, the infrastructure products covered by this exemption are significantly different from other EEE. Accordingly, longer development cycles for lead-free designs are essential to assure continued supply of high reliability products to the market.

While significant progress has been made to qualify lead-free solder for many applications, the infrastructure products included in this exemption have unique requirements for longevity, reliability, and operating temperature.

These products are used in installations with 10 to 15 year life spans, and for applications where continuous operation is essential for the large numbers of users who rely on these mission critical infrastructures (e.g. police, fire, rescue, businesses, carriers, etc.).

In addition, some infrastructure products must operate reliably over wide temperature variations of –30C to +60C while cycling on an off as a function of network traffic. This creates additional thermal stress that must be addressed during development to assure long-term reliability. The next section on restrictions explains how these requirements lengthen the development cycle.

In summary, we recommend against a rapid transition of servers and infrastructure products to lead-free designs that could negatively impact product reliability for these applications.

Instead the metered approach of conversion to lead-free products, as supported by the directive (through this exemption), should be retained.

**2. Do any restrictions apply to such substitutes?**

Compared to other EEE, infrastructure products requires longer development cycles to assure reliability.

As an example, infrastructure products experience higher reflow temperatures during production because of thicker PWB's and larger components that are utilized.

These higher temperatures (which can range from 15C to 30C higher) cause an increased level of component failure during production. Accordingly, during product development suitable substitutes must be identified for components that are found to be susceptible to failure.

While these substitutes are technically possible, the selection and new component qualification process lengthens the development cycle, and often requires upstream suppliers to change designs and process to accommodate more stringent requirements.

Without this exemption, some upstream suppliers may not have the capacity to modify all components in time for development of all lead-free products by the time the directive becomes effective. This would cause either an interruption of product supply to market, or the release of products with lower reliability.

**3. What are the costs and benefits and advantages and disadvantages of such substitutes?**

Costs - While there is certainly a significant cost to convert products from lead to lead-free, this should not be a driver in evaluating this exemption.

Benefits/advantage – Continuing to allow this exemption for the short term allows producers essential time to redesign servers and infrastructure products with the reliability needed for these mission critical applications.

Disadvantages – The disadvantages of maintaining the exemption are small because at the "end-of-life" stage, equipment will be returned to the manufacturer under the WEEE regulation. The manufacture's recycler will disassemble the products and recover the valuable parts and metals. This process minimizes any impact on the environment. It should also be noted that these products are sold in substantially lower volumes when compared to personal computers and other consumer electronic products.

**Motorola's Recommendation:**

1. The lead-solder exemption in the current RoHS regulation should be maintained for both servers and communication infrastructure equipment.

2. The expiration date for this exemption for servers should be maintained at 2010. An expiration date of 2010, or later, should be adopted for network infrastructure products.

3. The **EICTA position on the definition of "solder" and on the scope of "networking infrastructure equipment", "server" and "storage array system" product exemption in the RoHS Directive**, dated September 2003 should be supported by the TAC, as it provides important guidance to the industry, which is consistent with the intent of the directive.

In conclusion, many of the points made above are well defined and documented in the **AeA Guide to Lead Solder in view of the technical review of the Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment**, dated May 2003.