

CTS[®]

Electronics Manufacturing Solutions

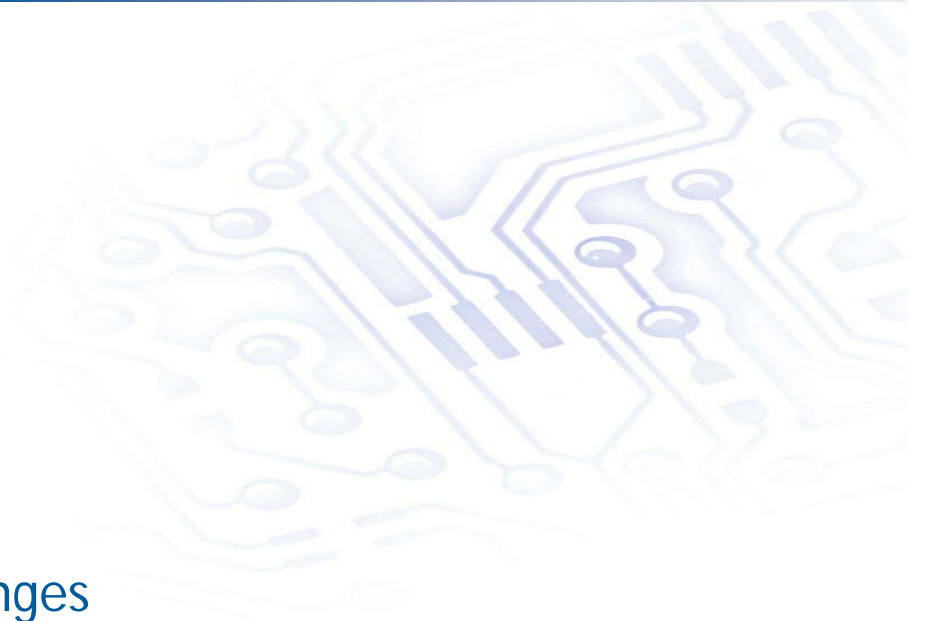
RoHS & WEEE Compliance

May 2007



Content

- ✿ Overview of WEEE Legislation
- ✿ Overview of RoHS Legislation
- ✿ WEEE Compliance Strategy
- ✿ RoHS Transition Planning
- ✿ Sources of further Information
- ✿ Lead-Free Assembly Process Challenges
- ✿ Lead-Free Materials & Components
- ✿ CTS Lead-Free Qualification



Key Dates

✿ 13 August 2005

- WEEE Directive mandates producers provide at least for financing of the collection, treatment, recovery and environmentally sound disposal of WEEE
- All products put on market after this date to be marked

✿ 1 Jul 2006

- Products put on the market to comply with RoHS directive



2002/96/EC - Waste Electrical and Electronic Equipment (WEEE)

✿ The directive addresses producer responsibility for the **Collection, Treatment, Recovery** and from the following Equipment classifications

1. Large household appliances
2. Small household appliances
3. IT and telecommunications equipment
4. Consumer equipment
5. Lighting equipment
6. Electrical and electronic tools
(with the exception of large-scale stationary industrial tools)
7. Toys, leisure and sports equipment
8. Medical devices
(with the exception of all implanted and infected products)
9. Monitoring and control instruments
10. Automatic dispensers



Producer Definition

- ✦ A **producer** is defined within the directive as anyone who:
 - manufactures and sells electrical and electronic equipment under his own brand
 - resells under his own brand equipment produced by other suppliers, a reseller not being regarded as the “producer” if the brand of the producer appears on the equipment
 - imports or exports electrical and electronic equipment on a professional basis into a member state



"Grey Area" Products

- ✿ Products where electricity is not the main power source
 - Gas heating system with an electric thermostat
- ✿ Products where the electrical or electronic components are not needed to fulfil the primary function
 - E.G. Musical greeting cards
- ✿ Items which are electrical and electronic equipment that is part of another type of equipment or a fixed installation
 - E.g. A car radio
- ✿ The Technical Adaptation Committee are currently working to provide clarification on these products



Article 5 - Separate Collection

- ✿ “when supplying new product, distributors shall be responsible for ensuring that such waste can be returned to the distributor at least free of charge on a one-to-one basis as long as the equipment is of equivalent type and has fulfilled the same function as the supplied equipment.”



Article 6 - Treatment

- ✿ “Member states shall ensure that producers or third parties acting on their behalf, in accordance with Community legislation, set up systems to provide for the treatment of WEEE using best available treatment, recovery, and recycling techniques.”
- ✿ “...the treatment shall as a minimum include the removal of all fluids and a selective treatment in accordance with Annex II to the directive”



Article 7 - Recovery

- ✿ Recovery means any of the applicable operations provided for in Annex IIB to Directive 75/442/EEC
- ✿ Targets for the rate of recovery from equipment falling under categories 1,2 3,4,5,6,7,9 & 10 are identified in Article 7 (70-80%).
- ✿ “The European Parliament and the council, acting on a proposal from the Commission, shall establish new targets for recovery and reuse/recycling, including for the use of whole appliances as appropriate, and for products falling under category 8 (medical devices) of Annex IA, by 31 December 2008.”



Disposal

- ✿ Disposal is defined as “any of the applicable operations provided for in Annex IIA to directive 75/442/EEC”
- ✿ Annex includes requirement for disposal without endangering human health and without the use of processes or methods likely to harm the environment.
- ✿ Includes
 - Deposit into or onto land
 - Release into a water body
 - Incineration
- ✿ RoHS directive has been introduced to complement the environmentally sound disposal requirements of the WEEE directive



2002/95/EC - Restriction of Hazardous Substances (RoHS)

- ✿ “Member States Shall ensure that lead, mercury, cadmium, hexavalent chromium and PBB (polybrominated biphenyls) /PBDE (polybrominated diphenylethers) halogenated flame-retardants are phased out by July 1, 2006.”



2002/95/EC - Restriction of Hazardous Substances (RoHS)

✿ Substances Banned by RoHS Directive

Banned RoHS Substance	RoHS MCV Limits	Use in Electronics
Lead	1000 ppm	Solder & interconnects, Batteries, PZT devices, discrete components, CRT glass, PVC cables
Cadmium	100 ppm	Batteries, pigments (yellow), additives in plastics (PVC), detectors, LEDs
Hexavalent Chromium	1000 ppm	Metal finishes for chassis, fasteners, other alloys
Mercury	1000 ppm	Switches, paints, polyurethane materials, lamps, bulbs, displays
PBB/PBDE	1000 ppm	Used as flame retardants (plastics, housing, cables, connectors, fans, components)



Put On The Market - Definiton

- ✿ This term is defined in an FAQ document produced by the EU Environment Directorate General
- ✿ “The words ‘put on the market’ in Article 10 (3) of the WEEE Directive and Article 4 (1) of the RoHS Directive refer to the initial action of making a product available for the first time on the Community market. This takes place when the product is transferred (e.g. physical hand-over or transfer of ownership) from the producer to a distributor or final consumer or user on the Community market.”
- ✿ “Making a product available for the first time refers to each individual piece of equipment put on the market after the date for the substances restrictions (that is July 2006), and not to the launch of a new product or product line. Moreover the concept of putting on the market refers to each individual product, not to a type of product, irrespective of whether it was manufactured as an individual unit or a series.”



Scope

✿ “Without prejudice to Article 6, this Directive shall apply to electrical and electronic equipment falling under 1,2,3,4,5,6,7 and 10 set out in Annex IA to Directive No 2002/96/EC (WEEE) and to electric light bulbs, and luminaires in households”

1. Large household appliances
2. Small household appliances
3. IT and telecommunications equipment
4. Consumer equipment
5. Lighting equipment
6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
7. Toys, leisure and sports equipment
10. Automatic dispensers



Scope

- ✿ RoHS does not apply to WEEE equipment categories 8 & 9, medical devices, and monitoring and control instruments
- ✿ “This directive does not apply to spare parts for the repair, or to the reuse, of electrical and electronic equipment put on the market before 1st July 2006”
- ✿ Specific applications exempt from legislation listed in Annex to the directive
- ✿ Further requests for exemption currently under consideration by the RoHS Technical Adaptation Committee



Applicability to Medical Devices

- ✿ “Before 13 February 2005 the commission shall review the measures provided for in this Directive to take into account, as necessary, new scientific evidence
- ✿ “In particular the Commission shall, by that date, present proposals for including in the scope of this Directive equipment which falls under categories 8 (medical devices) and 9 set out in Annex IA to Directive 2002/96/EC (WEEE)
- ✿ ITT to conduct the review issued in March, ETC - 10 to 12 months
- ✿ Eucomed in their response to the EC public consultation on RoHS both promote the continuing exemption of medical devices, and also identify a list of exemptions which would need to be added to the Annex to allow the exemption to be rescinded



Application for Exemptions

- ✿ Requests for exemptions should be made to the Commission and comprise an exemption checklist and supporting technical information
- ✿ All requests will be assessed by a commission appointed technical expert before being forwarded to the Technical Adaptation Committee (TAC)
- ✿ Following TAC review all requests will be subject to a stakeholder consultation exercise
- ✿ E-mail ENV-RoHS@cec.eu.int or post to European Commission, DG Environment, Unit A2 - Consultation Directive 2002/95/EC, B-1049 Brussels, Belgium



WEEE Compliance Strategy

- ✦ Register as a producer with a National body
- ✦ Establish method of compliance (company or compliance scheme)
- ✦ Collect data on sales, weights of products etc. & Budget for necessary fees/costs
- ✦ Mark equipment
- ✦ Develop information to assist third parties in treatment, recovery and recycling



Producer Registration

- ✿ All producers must register with a National Body within each member state in which products are sold
- ✿ Member states requirements broadly fall into three categories
 - Those member states whose governments or enforcement agencies would handle the registration
 - Those where public bodies would work in tandem with producer organisations
 - Those where producer lead bodies would register
- ✿ Specific member state requirements can be found in the Perchards report “Transposition of WEEE & RoHS Directives into national law of EU Member States and corresponding industry activities”



Compliance Schemes

- ✿ Compliance schemes will assume all treatment and recovery responsibilities under the WEEE Directive for it's members
- ✿ Waste Management companies Onyx, Valpak, and Wastepack have set up pre-compliance schemes
- ✿ Other schemes have been formed by producers Repic (primarily focusing on consumer waste) Gambica (focusing on category 3, 8 (medical devices) and 9 waste)



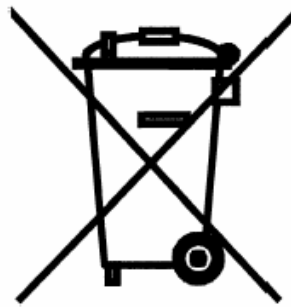
Budgeting

- ✿ Producers will be responsible for financing the collection, treatment, recovery and disposal of WEEE allocated to them
- ✿ WEEE will be assigned to producers on the basis of market share
- ✿ Annual sales data will therefore have to be provided to National Bodies to enable calculation of market share and appropriation of cost



Mark Equipment

- ✿ The WEEE regulations require producers to ensure that equipment put onto the market after 13 August 2005 is marked visibly, legibly and indelibly with the crossed out wheeled bin symbol.



- ✿ In addition, the Directive requires producers to ensure that products identify the producer, either brand name, trade mark, company registration number or other unique reference
- ✿ The RoHS Directive makes no reference to labelling requirements



Develop Information

- ✿ The WEEE regulations require producers to make arrangements to respond to requests for information to assist with the reuse, recycling and recovery of new equipment. This may include
 - Advice on the location of items and substances requiring treatment
 - Location and type of dangerous/hazardous substances, materials or components within the type of equipment.
- ✿ In the UK this information should be available within one year of placing the equipment on the market
- ✿ At present producers have the option of making such information available upon request, or take steps to make information available e.g through electronic media.



RoHS Transition Planning

- ✦ Component vendors who supply customers other than medical/ monitoring and control instrument customers will be driven towards RoHS compliance and lead-free manufacturing
- ✦ Over time, economies of scale will be realised from RoHS compliance, non-RoHS compliance will command a cost premium
- ✦ Many OEMs are transitioning current product sets to RoHS compliant
- ✦ OEMs not moving to RoHS compliance need to understand vendors product roadmaps to ensure continuity of supply



Typical Transition Plan

- ✿ Scrub BoMs
 - Part no. changes
- ✿ Obtain Declarations of Conformance from supply chain
 - Maintain records
- ✿ Perform RoHS compliance testing on critical/ high risk components a number of organisations are developing tests for this purpose
 - ERA Technology
 - Soldertec Global
- ✿ Product Qualification
 - Build lead-free samples
 - Performance testing
 - Reliability analysis
- ✿ Purge Inventory



Further Information

- ✿ European Commission Environmental Directorate General
http://www.europa.eu.int/comm/environment/waste/weee_index.htm
- ✿ UK Department of Trade and Industry
 - www.dti.gov.uk/sustainability/weee/index.htm
- ✿ Eucomed Environmental Task Group
 - www.eucomed.be/?x=4&y=3



Summary

- ✿ By 13 August 2005 producers will be financially responsible for the collection, treatment, recovery and environmentally sound disposal of their products at end of life
 - Need to define a compliance strategy now
 - Should address all all key elements reviewed today
- ✿ RoHS legislation will affect all OEMs whether or not products are exempt from the legislation
 - Need to evaluate how compliance will affect supply chain
 - Need to maintain awareness of changes in scope of the directive, specifically the exclusion of medical products

