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Environmental Product Compliance Supplier Requirements

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1.0 General Purpose

Legislation regulating the use of certain substances in electrical and electronic equipment is in effect in multiple jurisdictions around the world, with additional legislation emerging on a regular basis. MACOM is committed to complying with this legislation. In order to be successful in this commitment, it is imperative that our suppliers are committed to supporting our efforts towards global environmental compliance.

This document establishes the criteria under which MACOM Corporation will ensure compliance with regulations concerning the use and reporting of certain substances relevant to its products.

This document does not negate nor in any way supersede International laws and regulations or industry standards. In the event of a conflict between the requirements stated in this document or any other MACOM documents, with any piece of legislation, the more restrictive of the requirements shall take precedence. Any ambiguity should be discussed and agreed in writing by MACOM.

2.0 Environmental Commitment

In addition to maintaining our Environmental Compliance System, this document will help MACOM to reach its overall environmental commitment. This includes:

- Avoid the use of components or materials which may present a threat to the environment or human health during production, use or via disposal waste at the end of our products' lifecycle.
- Comply with laws in markets that restrict or require disclosure of the presence of certain chemical substances in our products.
- Minimize the adverse impact of our products on the environment.
- Minimize pollution during normal use of our products.

3.0 Scope

The requirements of this specification apply to any new or current components or materials supplied to MACOM, including packing material used to transport or store the products. This specification also applies to variations made to said components or materials which may have been previously supplied to MACOM. Unless otherwise stated, these policies and procedures are applicable to Suppliers to MACOM and its subsidiaries. The contents of this specification are based upon current conditions and are subject to change.

4.0 Supplier Responsibility

It is the responsibility of the supplier to assure compliance with this specification for any subcontracted operations coordinated by the supplier and any materials or components specified by the supplier. The Supplier is also responsible for compliance with any and all pertinent legal requirements for all operations coordinated and materials or components specified or manufactured by the supplier.

Supplier shall collaborate with MACOM in matters concerning compliance with all applicable international, national, state/provincial environmental laws and regulations, and shall provide all information and support required by MACOM.

MACOM requires its suppliers to maintain sufficient documentation regarding its products and packing materials to support all communications of their compliance status. Supplier must retain this documentation for a minimum of 5 years after the products have been supplied to MACOM.

Supplier compliance documentation must demonstrate the specific actions taken by the supplier to verify compliance. This include the specific actions taken by the supplier to ensure that its supply chain is compliant. This documentation must be kept on file by the supplier and made available to MACOM on request.

The required documentation can take the form of the following; Process Flows, Cross Contamination Controls, direct and indirect materials information pertinent to compliance, chemical approval and use records and all pertinent certification documents including ISO certifications and customer certifications.

Please provide all requested data within 10 business days of request. Please note that you may receive ongoing requests for information as MACOM introduces new parts or products, and for information updates to ensure that your declarations continue to comply with current regulations.

As always, Suppliers are required to notify MACOM of any process, material or substance change to the item, implemented by the supplier. This change will require a resubmission of another full material disclosure that accurately reflects the new chemical and substance make-up of the product that they supply MACOM or its sub-contractors.

5.0 Supporting Documentation

- Purchase Order terms and Conditions
- Supplier Quality Manual ECP-QM-1000
- New vendor approval process – QP-236
- Supplier Quality Audit Survey – QP-391
- Sub-Contractor FAR process – QP-245
- Conflict Minerals Management System – CSR-1001

6.0 Terms and definitions

Restricted Substance: Substance that is not permitted in materials supplied to MACOM above the stipulated threshold. Suppliers are required to provide evidence that the materials provided to MACOM meet these requirements

Reportable Substances: Substances which should be reported to MACOM if they exist in the material supplied to MACOM above the stipulated threshold.

Homogeneous material: A material that cannot be mechanically disjointed into different materials.

- The term “homogeneous” means “of uniform composition throughout.” Examples of “homogeneous materials” are individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins and coatings.
- The term “mechanically disjointed” means that the materials can, in principle, be separated by mechanical actions such as: unscrewing, cutting, crushing, grinding and abrasive processes.

Intentionally added: Deliberately used in the formulation of a product where its continued presence is desired to provide a specific characteristic, appearance, property, attribute or quality.

Material: A material is made up of one or more substances (e.g., an alloy is a material, which in turn is made up of a number of substances).

Article: An object which during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition.

Substance: A chemical element or compound e.g., lead (a chemical element), lead oxide (a compound), polyvinyl chloride (a compound). Registry Numbers (RN) of the Chemical Abstracts System of the American Chemical Society (“CAS” numbers) and/or European Chemical (“EC” numbers) are attributed to all chemical elements and most of their compounds and should be used for their identification. CAS numbers and EC numbers should be provided by the supplier when making a materials declaration.

Threshold level: The concentration level that defines the limit at or above which the presence of a substance in a product shall be declared based on the requirements of legislation or any other relevant requirement stated in this document.

Numerical threshold levels are provided in weight % (and parts per million, or ppm). The conversion to be used to calculate ppm is 0.1 % = 1 000 ppm.

CAS Number: CAS Registry Numbers are unique numerical identifiers assigned by the “Chemical Abstracts Service” to every chemical described in the open scientific literature. The Registry maintained by CAS is an authoritative collection of disclosed chemical substance information.

Material declaration: A full disclosure list of all homogeneous materials and substances contained with the item. It includes the chemical name, CAS numbers, weights/PPMs/percentage.

Full disclosure: The declaration of 100% of the composition of a subcomponents mass or of a raw material

Certificate of Conformance: Signed document stating supplier compliance to regulations where full disclosure is not possible.

Packaging Materials: Materials used to assemble MACOM product into the final package for use in a customer application. Examples of packaging materials include mold compounds, die attach epoxies, laminate substrates, Lead frames, plating materials, etc.

Packing materials: Material used to protect electronic items from mechanical, environmental and electrical damage during transportation or storage. Packing material is discarded prior to the incorporation of the item into its end application. Examples;

- Labels hung directly on or attached to the product
- Sticky labels attached to another packing material
- Staples
- Bags (moisture barrier, ESD, etc)
- Packing reels (inserts and carrier tape)
- Desiccants
- Humidity indicating cards (HICs)
- Cushioning material (Bubble wrap, Stryofoam, packing peanuts, etc)

7.0 Relevant Legislation

The supplier shall comply with all relevant legislation plus amendments in force at an international, national and state/provincial level in particular in view of the obligation of the supplier to provide information on the chemical substances constituting or contained in products sold or otherwise transferred to MACOM.

Any emerging legislation in MACOM markets as identified by MACOM Corporation will also apply. Detailed requirements for all MACOM Suppliers can be found in the Tables and Appendix of this document. Such international, national and state/provincial laws, regulations and implementations include, but are not limited to;

- EU: Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU
- EU: Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) EC 1907/2006,
- EU: EC 1005/2009 on Substances that deplete the ozone layer
- EU: Regulation No. 842/2006 on certain Fluorinated Greenhouse Gases
- EU: Persistent Organic Pollutants (EC/850/2004)
- EU: 2009/425/EC, Restrictions on marketing and use of organostannic compounds
- EU: Commission Decision 2009/251/EC on Dimethylfumarate (DMF)
- EU: Directive 94/62/EC on Packaging and Packaging Waste amended with 2004/12/EC
- California (USA): Proposition 65, Safe Drinking Water and Toxic Enforcement Act of 1986,
- Canada: Prohibition of certain toxic Substances Regulations, 2012 SOR2012-285
- Canada: Environmental Protection Act SOR/2008/178
- Norway: Norway Product Regulations FOR-2004- 06-01-922
- Switzerland: Swiss Ordinance on the reduction of Risk from Chemical Products
- China: Management Methods for Controlling Pollution by Electronic Information Products, MII Order 39, 2006,
- Japan: Chemical Substances Control Law (CSCL), Law No. 117 of 1973,
- South Korea: Resource Recycling of Electrical and Electronic Equipment and Vehicles, Act No. 8405, 2007,
- Vietnam: Hazardous Substances in Electrical and Electronic Equipment, Circular No. 30/2011/TT-BCT,
- Turkey: Restriction on Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment, Regulations, May 2008,
- India: E-waste (Management and Handling) Rules, Statutory Order 1035 (E), May 2011,
- International Standards For Phytosanitary Measures No. 15, ISPM - 15
- Montreal Protocol, 1987
- Rotterdam Convention, 1998
- Stockholm Convention, 2001

8.0 Demonstrating Compliance

8.1 Restricted and Reportable substances

- Product & Packaging materials must be compliant with the substance restrictions in Table 1 & 3.
- Product & Packaging materials must be compliant with the substance restrictions in Table 2 by December 2018.
- Packing material must be compliance with the substance restrictions in Table 4.
- Supplier must report to MACOM if any product, packaging or packing materials contains substances above threshold from Table 5.
- Supplier must report to MACOM if any product or packaging materials contains substances above threshold from Table 6.

8.2 Documentation required by MACOM

Supplier must provide the following documentation for all components, packaging and packing material supplied;

- Material Declaration Form (MDF). Example of required format in Appendix 2.
 - Weight of the part/material
 - Chemical composition/% content of each CAS numbered item
 - Surface finish detail
 - Relevant EU RoHS exemption
- Certificates of Conformance (CoC) for any trade secret items for EU RoHS and EU REACH
- SGS or other third party certification of material content is required to be provided by the supplier. See Appendix 1.

Suppliers are required to;

- Have a Conflict Minerals Program in place
- Provide a Conflict Minerals Report in EICC-GeSI format annually
 - Use the most up to date template
 - Must fill out the template fully and correctly
 - Must list **ALL** smelters in their supply chain, including addresses & contact details.
- Ensure that all smelters in its supply chain engage with the Conflict Free Sourcing Initiative or other relevant bodies and smelters submit to an appropriate audit.

Compliance and Conflict Minerals information and reference material contained in Appendix 3.

8.4 Compliance Evaluation

All compliance documents will be reviewed. Any documents determined to be unacceptable will be identified and non-compliance issues will be raised with the supplier for resolution.

8.4 Deviations and Non Compliance

In the event that the material or component being supplied to MACOM does not meet one or more of the requirements of this specification, before or after the product has been delivered, the Supplier must notify MACOM so that joint action plans can be defined. This notification also applies if the supplier or a subcontractor(s) makes changes in their operations that will cause a material, component, assembly or product to no longer comply with this specification.

8.5 Audit

MACOM reserves the right to conduct audits and assessments of supplier's product information, hazardous substance management systems, documentation and facilities. Any issues arising from such audits will be addressed with the Supplier

9.0 Substances Restricted and Reportable

9.1 EU ROHS DIRECTIVE – SUBSTANCE RESTRICTIONS

Products, components and packaging materials supplied to MACOM must not contain the following substances in excess of the threshold levels indicated. Maximum concentration values apply to each homogeneous material, rather than part or product itself.

All suppliers must provide details of specific exemptions used in all products supplied to MACOM. Annex III of the RoHS Directive contains details of these exemptions.

Certain products specific to military and space application are not in scope for these restriction. Packing materials are also exempt.

RoHS Restricted Substances	CAS Number	Typical Use	Regulation	Threshold
Cadmium (Cd) and cadmium compounds	Group	plating, pigments	EU 2011/65/EC	100ppm
Hexavalent chromium (Cr ⁶⁺) – All forms	Group	conversion coatings, leather tanning	EU 2011/65/EC	1000ppm
Lead (Pb) and lead compounds	Group	various	EU 2011/65/EC	1000ppm
Mercury (Hg) and mercury compounds	Group	various	EU 2011/65/EC	1000ppm
Polybrominated Biphenyls (PBBs)	Group	various	EU 2011/65/EC	1000ppm
Polybrominated Diphenyl Ethers (PBDEs)	Group	various	EU 2011/65/EC	1000ppm

Table 1: EU RoHS Directive: Restricted Substances

9.1.1 EU ROHS DIRECTIVE – NEW SUBSTANCE RESTRICTIONS

Directive 2015/863/EU amends the EU RoHS Directive to restrict 4 new substances, which will be restricted from July 2019. All suppliers must comply with these restrictions by December 2018.

RoHS Restricted Substances 2019	CAS Number	Typical Use	Regulation	Threshold
Bis(2-Ethylhexyl) phthalate (DEHP)	117-87-7	Plasticizer	EU 2015/863/EC	1000ppm
Benzyl butly phthalate (BBP)	85-68-7	Plasticizer	EU 2015/863/EC	1000ppm
Dibutyl phthalate (DBP)	84-74-2	Plasticizer	EU 2015/863/EC	1000ppm
Diisobtuyl phthalate (DIBP)	84-69-5	Plasticizer	EU 2015/863/EC	1000ppm

Table 2: EU RoHS Directive: Substances to be restricted in 2019

9.2 ADDITIONAL SUBSTANCE RESTRICTIONS

Products, components and packaging materials supplied to MACOM must not contain the following substances in excess of the threshold levels indicated.

Additional Restricted	CAS Number	Typical Use	Regulation	Threshold
All Chlorofluorocarbons (CFC's)	Group	Solvents, refrigerants, propellants	EC/2037/2000 EPA ODP Class 1	0
All Halons	Group	fire extinguishers	EEC/ 594/91	0
All Hydrobromofluorocarbons (HBFC's)	Group	refrigerant	2009/1005/EU	0
All Hydrochlorofluorocarbons (HCFC's)	Group	refrigerant	2009/1005/EU	0
All Hydrofluorocarbons (HFC's)	Group	refrigerant	2009/1005/EU	0
All Fluorinated Greenhouse Gases (PFC, SF6, HFC)	Group	refrigerant	EC/2006/842	0
All Perfluorooctane sulfonates (PFOS)	Group	Surface coating, surfactant	EC/850/2004	1000ppm
Perfluorooctanoic acid (PFOA)	335-67-1 3825-26-1 335-95-5 2395-00-8 335-93-3 335-66-0 376-27-2 3108-24-5	Textiles, electronics, adhesives, semiconductors, photographic coatings	Norway Products Regulation Chapter 2	1000ppm
Short Chain Chlorinated Parafins (C10-C13)	Group	Plasticizer for PVC, Flame retardent	EU 850/2004	0.1 Mass %

Additional Restricted Substances	CAS Number	Typical Use	Regulation	Threshold
Hexabromocyclododecane (HBCDD) and all major diastereoisomers	Group	Flame retardent	EEC/ 594/91	Intentionally added or 0.1mass %
Polychlorinated Biphenyls (PCBs)	Group	Electrical insulation fluid, softening agent	REACH 1907/2006 Annex XVII	50ppm
PolyChlorinated Naphthalenes (PCNs)	Group	Lubricant, paint, stabilizer, insulator, flame retardant	Japan Chemical Substances Control Law	Intentionally added
All Polychlorinated Terphenyls (PCT)	Group	Insulation fluid impregnation, agent, softening agent agent, softening agent	REACH 1907/2006 Annex XVII	0.005 mass% in material
Dimethyl Fumerate (DMF)	624-49-7	Biocide Mould inhibitor	2009/251/EC	0.1ppm
Asbestos	Group	Insulator, filler, pigment, paint	REACH 1907/2006 Annex XVII	Intentionally added
Radioactive substances	Group	Optical properties, measuring devices, gauges, detectors	2009/1005/EU	0
Tri-substituted organostannic compounds	Group	Electrical insulation medium, plasticisers, flame retardant, dielectric sealant, coating for electrical wire	REACH 1907/2006 Annex XVII	Intentionally added or 0.1 mass% by part

Table 3: MACOM additional Restricted Substance

Note: All CAS numbers relevant to the above Groups of substances can be found at <http://std.iec.ch/iec62474/iec62474.nsf/MainFrameset> under Reference Substances.

9.3 PACKING MATERIALS – RESTRICTED SUBSTANCES

Suppliers are required to comply with the EU Packaging Directive 94/62/EC and any subsequent amendments. This applies to all packing materials (paper, plastic, wood, etc). The maximum threshold levels can be seen below.

Relevant to;

- Primary
 - Product packaging, such as Tape and Reel
- Secondary
 - Grouped packaging, such as pizza box
- Tertiary
 - Transport packaging, such as pallet or shrink wrap
- Paper & Labels
 - Packaging labels, insert materials, cushioning materials

Substances in Packaging and Paper Products	CAS Number	Typical Use	Regulation	Threshold
Sum of concentration levels of: - Lead - Cadmium - Mercury - Hexavalent Chromium	7439-92-1 7440-43-9 7439-97-6 18540-29-9	Paper, packaging materials	94/62/EC	100ppm Total for all 4 metals combined

Table 4: EU Packaging Directive: Restricted Substances

ISPM 15 Requirements

ISPM affects all wood packaging materials (pallets, crates, etc) requiring that they be debarked and then heat treated or fumigated with methyl bromide and stamped or branded with a mark of compliance. Products exempt from ISPM 15 are made from alternative materials like paper, plastic or wood panel products (OSB, hardboard and plywood, etc)

9.4 EU REACH REGULATION – REPORTABLE SUBSTANCES

For substances at or above the threshold levels, suppliers must provide MACOM with information on the presence of the following substance in components, packaging or packing material. Suppliers are required to provide updated information every 6 months with each new listing published by the European Chemicals Agency.

REACH Substances	CAS Number	Typical Use	Release Date	Threshold
4,4'-Diaminodiphenylmethane (MDA)	101-77-9	Hardener for epoxy resins and adhesives	October 28, 2008	1000ppm
5-tert-butyl-2-4-6-trinitro-m-xylene	81-15-2	Fabric softener, detergents	October 28, 2008	1000ppm
Alkanes, C10-13, Chloro (Chlorinated Paraffin)	85535-84-8	Flame retardant, plasticizer for rubber, sealants, coatings	October 28, 2008	1000ppm
Benzyl butyl phthalate (BBP)	85-68-7	Plasticizer for PVC and rubber sealants	October 28, 2008	1000ppm
Bis (2-ethyl(hexyl)phthalate) (DEHP)	117-81-7	Plasticizer for PVC and rubber sealants	October 28, 2008	1000ppm
Dibutyl phthalate (DBP)	84-74-2	Plasticizer for PVC and rubber sealants	October 28, 2008	1000ppm
Hexabromocyclododecane (HBCDD)	25637-99-4	Flame retardant in polystyrene	October 28, 2008	1000ppm
2,4 Dinitrotoluene	121-14-2	polyurethane foam, azo dyes, rubber and plastics	January 13, 2010	1000ppm
Acrylamide	79-06-1	coatings and paints, dye fixing agent	March 30, 2010	1000ppm
Aluminosilicate, Refractory Ceramic Fibres	----	high temperature insulation applications	January 13, 2010	1000ppm
Zirconia Aluminosilicate, Refractory Ceramic Fibres	----		January 13, 2010	1000ppm
Anthracene	120-12-7	dye intermediate, insecticide, fungicide	October 28, 2008	1000ppm
Anthracene Oil	90640-80-5	paint and sealing coats, wood preservatives, dyestuff, insecticides	January 13, 2010	1000ppm
Anthracene Oil, anthracene paste	90640-81-6		January 13, 2010	1000ppm
Anthracene Oil, anthracene paste, anthracene fraction	91995-15-2		January 13, 2010	1000ppm
Anthracene Oil, anthracene paste, distn. Lights	91995-17-4		January 13, 2010	1000ppm
Anthracene Oil, anthracene-low	90640-82-7		January 13, 2010	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
Coal tar pitch, high temperature	65996-93-2	corrosion protection, wood preservative	January 13, 2010	1000ppm
Cobalt dichloride	7646-79-9	drying agent		1000ppm
Diarsenic pentaoxide	1303-28-2	dyes, dyes, special glasses, wood preservative	October 28, 2008	1000ppm
Diarsenic trioxide	1327-53-3	leather and wood preservative	October 28, 2008	1000ppm
Diisobutyl phthalate	84-69-5	plasticizer, adhesive additive, printing inks	January 13, 2010	1000ppm
Lead chromate	7758-97-6	pigments and dyes, photosensitive materials	January 13, 2010	1000ppm
Lead chromate molybdate sulfate red (C.I. Pigment Red)	12656-85-8	paint and printing inks, rubber, plastic, paper, leather finishing	January 13, 2010	1000ppm
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2		January 13, 2010	1000ppm
Lead hydrogen arsenate	7784-40-9	insecticide	October 28, 2008	1000ppm
Sodium dichromate, dihydrate	7789-12-0	metal finishing, leather tanning, textile dyeing	October 28, 2008	1000ppm
Tributyltin Oxide (TBTO)	56-35-9	polyurethane foam, polymer catalyst, paint preservative	October 28, 2008	1000ppm
Triethyl arsenate	15606-95-8	Plastic and PVC, electrical equipment, textiles, wood preservative	October 28, 2008	1000ppm
Tris (2-chloroethyl) phosphate	115-96-8	flame retardant, plasticizer, PU foams PVC, plastics, rubber	January 13, 2010	1000ppm
Trichloroethylene	79-01-06	Industrial solvent, adhesive carrier	June 18, 2010	1000ppm
Boric Acid	10043-35-3	biocides, glass, ceramics, rubber, flame retardants, paints, soldering products	June 18, 2010	1000ppm
Disodium tetraborate, anhydrous	1330-43-4	glass and glass fibres, ceramics, adhesives, flame retardants, biocides	June 18, 2010	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
Tetraboron disodium heptaoxide, hydrate	12267-73-1	glass and glass fibres, ceramics, adhesives, flame retardants, biocides	June 18, 2010	1000ppm
Sodium chromate	7775-11-3	mfg of chromium compounds	June 18, 2010	1000ppm
Potassium chromate	7789-00-6	metal coatings, ceramic coloring agent, leather tanning, pigment and inks	June 18, 2010	1000ppm
Ammonium dichromate	7789-09-5	metal treatment, leather tanning	June 18, 2010	1000ppm
Potassium dichromate	7778-50-9	chroming, metal treatments, photolithography	June 18, 2010	1000ppm
Cobalt(II) sulphate	10124-43-3	chemical production, catalysts, driers, surface treatment, corrosion prevention, pigments, batteries, animal food supplements, fertilizer	December 15, 2010	1000ppm
Cobalt(II) dinitrate	10141-05-6	chemical production, catalysts, surface treatment, batteries	December 15, 2010	1000ppm
Cobalt(II) carbonate	513-79-1	chemical production, catalysts, feed additive, pigments, adhesives	December 15, 2010	1000ppm
Cobalt(II) diacetate	71-48-7	chemical production, catalysts, surface treatment, alloys, pigments, dyes, rubber adhesion, feed additive	December 15, 2010	1000ppm
2-Methoxyethanol	109-86-4	solvent, fuel additive, chemical intermediate	December 15, 2010	1000ppm
2-Ethoxyethanol	110-80-5	solvent, chemical intermediate	December 15, 2010	1000ppm
Chromium trioxide	1333-82-0	metal finishing, wood preservative fixing agent	December 15, 2010	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
Acids generated from chromium trioxide and their oligomers: Chromic acid, Dichromic acid Oligomers of chromic acid and dichromic acid	7738-94-5 13530-68-2	metal finishing, wood preservative fixing agent	December 15, 2010	1000ppm
1-methyl-2-pyrrolidone	872-50-4	Coatings, electronics, pharmaceuticals	June 20, 2011	1000ppm
2-ethoxyethyl acetate	111-15-9	Chemicals, plastics, rubber	June 20, 2011	1000ppm
1,2,3-trichloropropane	96-18-4	Pesticides, chlorinated solvents	June 20, 2011	1000ppm
Strontium chromate	7789-06-2	Automobile and aerospace industries	June 20, 2011	1000ppm
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	PVC additive	June 20, 2011	1000ppm
1,2-Benzenedicarboxylic acid, di-C6-8- branched alkyl esters, C7-11 (C6-8)	71888-89-6	PVC additive	June 20, 2011	1000ppm
Hydrazine	302-01-2	Chemical intermediate	June 20, 2011	1000ppm
Lead styphnate	15245-44-0	Pyrotechnics and ammunition	December 19,2011	1000ppm
Lead diazide, Lead azide	13424-46-9	pyrotechnics	December 19,2011	1000ppm
Lead dipicrate	6477-64-1	explosives	December 19,2011	1000ppm
Phenolphthalein	77-09-8	pH paper	December 19,2011	1000ppm
2,2'-dichloro-4,4'-methylenedianiline	101-14-4	Resins and polymers	December 19,2011	1000ppm
N,N-dimethylacetamide	127-19-5	Reagent in coatings, films, paint strppers and ink removers	December 19,2011	1000ppm
Trilead diarsenate	3687-31-8	Metals processing	December 19,2011	1000ppm
Calcium arsenate	7778-44-1	Used as a chemical precipitant	December 19,2011	1000ppm
Arsenic acid	7778-39-4	Used in production of printed circuit boards	December 19,2011	1000ppm
Bis(2-methoxyethyl) ether	111-96-6	Solvent used in battery electrolytes, sealants, adhesives and automotive care products	December 19,2011	1000ppm
1,2-dichloroethane	107-06-2	Chemical intermediate, solvent	December 19,2011	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	Component in adhesives, coatings, inks and rubber	December 19,2011	1000ppm
2-Methoxyaniline; o-Anisidine	90-04-0	Colorant for paper, polymers and aluminum foil	December 19,2011	1000ppm
Bis(2-methoxyethyl) phthalate	117-82-8	Plasticizer in polymers, paints, lacquers and inks	December 19,2011	1000ppm
Formaldehyde, oligomeric reaction products with aniline	25214-70-4	Chemical intermediate, adhesives	December 19,2011	1000ppm
Zirconia Aluminosilicate Refractory Ceramic Fibres (REACH6)	----	Automotive and aviation industry high- temperature insulation, fire protection	December 19,2011	1000ppm
Aluminosilicate Refractory Ceramic Fibres (REACH6)	----	Automotive and aviation industry high- temperature insulation, fire protection	December 19,2011	1000ppm
Pentazinc chromate octahydroxide	49663-84-5	Vehicle and aeronautic/aerospace coatings	December 19,2011	1000ppm
Potassium hydroxyoctaoxodizincatedichromate	11103-86-9	Aeronautic/aerospace metal coatings	December 19,2011	1000ppm
Dichromium tris(chromate)	24613-89-6	Aeronautic/aerospace metal surface treatment and coatings	December 19,2011	1000ppm
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	Solvent or as a processing aid in the manufacture and formulation of industrial chemicals	June 18, 2012	1000ppm
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Used as an electrolyte solvent in lithium batteries	June 18, 2012	1000ppm
Diboron trioxide	1303-86-2	Used in glass and glass fibres, frits, ceramics, flame retardants, catalysts, industrial fluids, metallurgy, nuclear, electrical equipment, adhesives, inks/paints, film developing solutions, detergents and cleaners, reagent chemicals, biocides and insecticides	June 18, 2012	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
Formamide	75-12-7	Used as an intermediate in the manufacture of agrochemicals, pharmaceuticals and industrial chemicals, also used as a plasticizer	June 18, 2012	1000ppm
Lead(II) bis(methanesulfonate)	17570-76-2	Mainly used in plating processes (both electrolytic and electroless) for electronic components (such as printed circuit boards). The substance seems to also be used for batteries in special applications	June 18, 2012	1000ppm
1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (TGIC)	2451-62-9	Used as a hardener in resins and coatings and in inks for the printed circuit board industry, electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing coatings, tools, adhesives, lining materials and stabilisers for plastics	June 18, 2012	1000ppm
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC)	59653-74-6	Used as a solder mask ink and in electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing, coatings, tools, adhesives, lining materials and stabilisers for plastics	June 18, 2012	1000ppm
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	Used as an intermediate in the manufacture of triphenylmethane dyes and other substances and as an additive (photosensitiser) in dyes and pigments, in dry film products and as a process chemical in the production of electronic circuit boards	June 18, 2012	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	Used as an intermediate in the manufacture of dyes and other substances	June 18, 2012	1000ppm
[4-[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26)	2580-56-5	Used in the formulation of inks, cleaners, and coatings and for dyeing paper, packaging, textiles, plastic products, and other types of articles	June 18, 2012	1000ppm
[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)	548-62-9	Used for paper coloring and inks supplied in printer cartridges	June 18, 2012	1000ppm
4,4'-bis(dimethylamino) - 4''- (methylamino) trityl alcohol	561-41-1	Used in the formulation of writing inks and other inks, and for dyeing materials	June 18, 2012	1000ppm
α,α -Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	6786-83-0	Used in the formulation of printing and writing inks and for dyeing paper	June 18, 2012	1000ppm
Pyrochlore, antimony lead yellow	8012-00-8	Coatings and paints, thinners, paint removes Ink and toners Stone, plaster, cement, glass and ceramic articles	December 19, 2012	1000ppm
p-cresidine (6-methoxy-m-toluidine)	120-71-8	Intermediate - raw material for manufacturing of pigments	December 19, 2012	1000ppm
Henicosfluoroundecanoic acid	2058-94-8		December 19, 2012	1000ppm
Hexahydromethylphthalic anhydride and its isomers	25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9	Used in the manufacture of polyester and alkyd resins and plasticizers for thermoplastic polymers	December 19, 2012	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
Cyclohexane-1,2-dicarboxylic anhydride and its isomers	85-42-7 13149-00-3 14166-21-3	Plasticizers for thermoplastic polymers Use as hardener for epoxy resins	December 19, 2012	1000ppm
DBTC (Dibutyltin dichloride)	683-18-1	Used as an additive in rubber, stabiliser in PVC plastics, catalyser in the production of polyurethanes and silicones; use in insulations and coatings	December 19, 2012	1000ppm
Lead bis(tetrafluoroborate)	13814-96-5	Metal surface treatment products, including galvanic and electroplating products	December 19, 2012	1000ppm
Lead dinitrate	10099-74-8	Coatings and paints, thinners, paint removers	December 19, 2012	1000ppm
Silicic acid, lead salt	11120-22-2	Stone, plaster, cement, glass and ceramic articles	December 19, 2012	1000ppm
4-Aminoazobenzene	60-09-3	Intermediate - Pigment production	December 19, 2012	1000ppm
Lead titanium zirconium oxide	12626-81-2	Manufacture of LTZ: Manufacture of computer, electronic and optical products, electrical equipment Machinery, mechanical appliances, electrical/electronic articles Processing into electro-ceramic components Manufacture of piezoceramic	December 19, 2012	1000ppm
Lead monoxide (lead oxide)	1317-36-8	Manufacture of plastics products, including compounding and conversion Manufacture of computer, electronic and optical products, electrical equipment	December 19, 2012	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
o-Toluidine	95-53-4	Used as a chemical intermediate for the production of the dyes C.I. solvent red 24 and C.I. acid red 115	December 19, 2012	1000ppm
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	Use in urethane coatings, sealants and elastomers	December 19, 2012	1000ppm
Silicic acid, barium salt, lead-doped	68784-75-8	Used for coating glass lamp bulbs: Coatings and paints, thinners, paint removers	December 19, 2012	1000ppm
Trilead bis(carbonate)dihydroxide	1319-46-6	PTC Ceramic Materials (End Sector: Semiconductors)	December 19, 2012	1000ppm
Furan	110-00-9	Chemical intermediate	December 19, 2012	1000ppm
N,N-dimethylformamide	68-12-2	Use of DMF in electronics, mainly in the manufacture of printed circuit boards Used as a cleaning solvent in the leather or artificial leather industry, and in the manufacturing of electrical allocation equipment and circuitry metal industry Use as a process solvent for the manufacture of substances including polymers used e.g. in plastics, artificial leathers, coatings, resins	December 19, 2012	1000ppm
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated		Formulation of paints Industrial end-use of paints use of ethoxylates in emulsion polymerisation use as intermediate for the production of ether sulphates	December 19, 2012	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
4-Nonylphenol		Washing of imported textiles Paints and Printing Inks Used in paper production as a component of phenolic resins used in coatings Used in water-based adhesives in the textile industry, pulp and paper industry, printing-works, construction industry, and in the plastic products industry May be used as antioxidants and plasticizers in plastic products	December 19, 2012	1000ppm
4,4'-methylenedi-o-toluidine	838-88-0	Chemical intermediate	December 19, 2012	1000ppm
Diethyl sulphate	64-67-5	Intermediate: Chemicals Polymers (reactant in synthesis)	December 19, 2012	1000ppm
Dimethyl sulphate	77-78-1	Intermediate: Chemicals Polymers	December 19, 2012	1000ppm
Lead oxide sulfate	12036-76-9	PVC Processing Manufacture of plastic articles Use of lead metal in lead oxide production and use of lead oxide in stabiliser production Lead-stabilised plastic materials	December 19, 2012	1000ppm
Lead titanium trioxide	12060-00-3	Semiconductors Manufacture of computer, electronic and optical products, electrical equipment Machinery, mechanical appliances, electrical/electronic articles	December 19, 2012	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
Acetic acid, lead salt, basic	51404-69-4	Coatings and paints, thinners, paint removers Manufacture of computer, electronic and optical products, electrical equipment	December 19, 2012	1000ppm
[Phthalato(2-)]dioxotrilead	69011-06-9	PVC Processing Manufacture of plastic articles Lead-stabilised plastic materials	December 19, 2012	1000ppm
DecaBDE (Bis(pentabromophenyl) ether)	1163-19-5	Flame retardant Elastomers often used for wire and cable insulation	December 19, 2012	1000ppm
N-methylacetamide	79-16-3	Production of chemical Formulation of preparations	December 19, 2012	1000ppm
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7	Polymers - formulation step, manufacture Plastic products	December 19, 2012	1000ppm
1,2-Diethoxyethane	629-14-1	1,2-diethoxyethane belongs to the glyme family of chemicals Glymes are used in various applications in electronic industry	December 19, 2012	1000ppm
Tetralead trioxide sulphate	12202-17-4	PVC Production: Plastic articles Lead Battery Production: Manufacture of computer, electronic and optical products, electrical equipment Industrial	December 19, 2012	1000ppm
N-pentyl-isopentylphthalate	776297-69-9	Can be used as plasticisers in plastic material.	December 19, 2012	1000ppm
Dioxobis(stearato)trilead	12578-12-0	PVC Processing Manufacture of plastic articles.	December 19, 2012	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
Tetraethyllead	78-00-2	Fuel additives and fuel blends	December 19, 2012	1000ppm
Pentalead tetraoxide sulphate	12065-90-6	PVC Processing Manufacture of plastic articles Electrical batteries and accumulators Lead-stabilised plastic materials	December 19, 2012	1000ppm
Pentacosaflluorotridecanoic acid	72629-94-8	Electronic coatings, degreasing	December 19, 2012	1000ppm
Tricosaflluorododecanoic acid	307-55-1		December 19, 2012	1000ppm
Heptacosaflluorotetradecanoic acid	376-06-7		December 19, 2012	1000ppm
n-propyl bromide (1-bromopropane)	106-94-5	Use as an industrial solvent for vapour degreasing - washing and cleaning products	December 19, 2012	1000ppm
Methoxyacetic acid	625-45-6	Manufacture of chemicals and chemicals products	December 19, 2012	1000ppm
Toluene-2,4-diamine (4-methyl-m- phenylenediamine)	95-80-7	Intermediate Chemical Synthesis Intermediate in production of sulfur dyes	December 19, 2012	1000ppm
Methyloxirane (Propylene oxide)	75-56-9	Manufacture of plastics products. Manufacture of computer, electronic and optical products, electrical equipment Adhesives, sealants	December 19, 2012	1000ppm
Trilead dioxide phosphonate	12141-20-7	PVC Processing: Plastic articles Electrical batteries and accumulators	December 19, 2012	1000ppm
o-aminoazotoluene	97-56-3	Used as a chemical intermediate for the production of the dyes C.I. solvent red 24 and C.I. acid red 115	December 19, 2012	1000ppm
1,2-Benzenedicarboxylic acid, dipentylester	84777-06-0	Used as plasticisers in plastic material	December 19, 2012	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
4,4'-oxydianiline and its salts	101-80-4	Monomer in imported polymer - Intermediate	December 19, 2012	1000ppm
Orange lead (lead tetroxide)	1314-41-6	Use of orange lead in lead acid battery production	December 19, 2012	1000ppm
Biphenyl-4-ylamine	92-67-1	Used to manufacture azo dyes	December 19, 2012	1000ppm
Diisopentylphthalate	605-50-5	Used as plasticiser for PVC products and other polymers	December 19, 2012	1000ppm
Fatty acids, C16-18, lead salts	91031-62-8	PVC Processing Manufacture of plastic articles Use of lead metal in lead oxide production and use of lead oxide in stabiliser production Lead-stabilised plastic materials	December 19, 2012	1000ppm
Diazene-1,2-dicarboxamide (C,C'- azodi(formamide))	123-77-3	Used as a blowing agent in the rubber and plastics industry	December 19, 2012	1000ppm
Sulfurous acid, lead salt, dibasic	62229-08-7	PVC Processing Manufacture of plastic articles Use of lead metal in lead oxide production and use of lead oxide in stabiliser production -Plastic articles -Metal articles	December 19, 2012	1000ppm
Lead cyanamidate	20837-86-9	Use in electrocoating	December 19, 2012	1000ppm
Cadmium	7440-43-9	Use in electroplating and metal coatings, batteries	June 20, 2013	1000ppm
Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	Water & oil repellent in textiles	June 20, 2013	1000ppm
Pentadecafluorooctanoic acid (PFOA)	335-67-1	Surfactant, Used in manufacture of materials with Trade names: Teflon, Gore-Tex	June 20, 2013	1000ppm
Dipentyl phthalate (DPP)	131-18-0	Plasticizer in PVC	June 20, 2013	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
4-Nonylphenol, branched and linear, ethoxylated		Surfactants	June 20, 2013	1000ppm
Cadmium oxide	1306-9-0	Plating baths, electrodes for batteries, pigments	June 20, 2013	1000ppm
Cadmium sulphide	1306-23-6	Pigment	December 16, 2013	1000ppm
Dihexyl phthalate (DNHP)	84-75-3	Plasticizer	December 16, 2013	1000ppm
Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	Dye, biological staining, pH indicator	December 16, 2013	1000ppm
Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	Dye	December 16, 2013	1000ppm
Imidazolidine-2-thione; 2-imidazoline-2-thiol (ETU)	96-45-7	Rubber goods	December 16, 2013	1000ppm
Lead di(acetate)	301-04-2	Coatings, paints, paint remover, thinners plasters and putties	December 16, 2013	1000ppm
Trixylyl phosphate (TXP)	25155-23-1	Flame retardant in plastic, plasticizer, hydraulic fluids, lubricants, grease products and metal working fluids	December 16, 2013	1000ppm
Diisohexyl phthalate (DIHP); 1,2- Benzenedicarboxylic acid	68515-50-4	Lubricant in steering fluid, plasticizer	June 16, 2014	1000ppm
Sodium Perborate; perboric acid	11138-47-9	Detergent, bleaching agent	June 16, 2014	1000ppm
Sodium peroxometaborate	7632-04-4	Detergent, bleaching agent, disinfectant, preservative	June 16, 2014	1000ppm
Cadmium chloride	10108-64-2	Pigment, chemical intermediate, photocopying, electroplating	June 16, 2014	1000ppm
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	UV stabilizer in plastics (PP, PU, PC, PVC, polyester, polyacrylates and others)	December 17, 2014	1000ppm

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	Stabilizer in plastics	December 17, 2014	1000ppm
(REACTION MASS OF DOTE AND MOTE)	-	-	December 17, 2014	1000ppm
Cadmium sulphate	10124-36-4, 31119-53-6	Pigment, stabilizer in plastics (PVC), dyes, electroplating, batteries, semiconductors, paints, glass, ceramics, textiles, paper, diodes and photomultipliers	December 17, 2014	1000ppm
Cadmium fluoride	7790-79-6	Production of metallic alloys	December 17, 2014	1000ppm
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	UV stabilizer in plastics (PVC, PC, PET, PA, ABS and others)	December 17, 2014	1000ppm
1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate	68515-51-5, 68648-93-1	plasticisers and lubricants, including use in adhesives, coatings, building material, cable compounding, polymer foils, PVC compounds	June 15, 2015	1000ppm
5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane; 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane	-	fragrance ingredient	June 15, 2015	1000ppm
1,3-propanesultone	1120-71-4	Production of detergents, fungicides, insecticides	Dec 17, 2015	1000ppm
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	UV Stabiliser	Dec 17, 2015	1000ppm
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	UV Stabiliser	Dec 17, 2015	1000ppm
Nitrobenzene	98-95-3	Used in the production of aniline	Dec 17, 2015	1000ppm
Perfluorononan-1-oic-acid and its sodium and ammonium salts	375-95-1 21049-39-8 4149-60-4	Cleaning agent, finishing agent, polishing surfactant in liquid crystal displays	Dec 17, 2015	1000ppm
Benzo[def]chrysene (Benzo(a)pyrene)	50-32-8	Impurities in carbon black, which is used as coloring agent in plastics and softener in rubbers	Jun 20, 2016	1000ppm

Table 5: EU REACH Regulation: Reportable Substances

REACH Substances con't	CAS Number	Typical Use	Release Date	Threshold
4,4'-isopropylidenediphenol (BPA)	80-05-7	Antioxidant for plasticizer and PVC, ink, paint and adhesive; used as monomer in epoxy resins and plastics	January 12, 2017	1000ppm
4-heptylphenol, branched and linear	-	Production of detergents	January 12, 2017	1000ppm
Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	-	Plasticizer, lubricant, corrosion inhibitor	January 12, 2017	1000ppm
p-(1,1-dimethylpropyl)phenol	80-46-6	Production of perfumes and fragrances	January 17, 2017	1000ppm
Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	-	Production impurity of Heptadecafluorooctane-1-sulphonic acid (PFOS). Can be used as an alternative for PFOS.	July 7, 2017	1000ppm

9.5 CONFLICT MINERALS – REPORTABLE SUBSTANCES

All suppliers of components and packaging material are required to provide a Conflict Minerals Report on an annual basis containing information on all smelters and refiners of the four Conflict Minerals in their supply chain. Conflict minerals are defined as Tin, Tungsten, Tantalum and Gold. See section x and y for further information.

Conflict Minerals	CAS Number	Typical Use	Regulation	Threshold
Tin	7440-31-5	electronic components, solders, wire	U.S. Dodd-Frank Wall Street Reform Act section 1502 on Congo Conflict Minerals	0
Tantalum	7440-25-7	capacitors	U.S. Dodd-Frank Wall Street Reform Act section 1502 on Congo Conflict Minerals	0
Tungsten	7440-33-7	Lighting filaments	U.S. Dodd-Frank Wall Street Reform Act section 1502 on Congo Conflict Minerals	0
Gold	7440-57-5	electronic components, connectors	U.S. Dodd-Frank Wall Street Reform Act section 1502 on Congo Conflict Minerals	0

Table 6: US Conflict Minerals: Reportable Minerals

Appendix 1 - Testing Requirements

Suppliers, including subcontractors are required to carry out independent testing of all component and packaging materials supplied to MACOM.

All laboratory reports must originate from an IPC 17025 certified lab, either internal or third party. Testing should be carried out to the IEC 62321 standard. Test reports should be updated every 24 months.

MACOM reserve the right to test the material composition of any material, component, assembly or product supplied to MACOM in order to determine compliance with this specification.

EU RoHS Metals
Cadmium (Cd)
Lead (Pb)
Mercury (Hg)
Chromium VI (Cr6+)
EU RoHS Polybrominated Biphenyls (PBBs)
See IEC 62474 link below for substance details
EU RoHS Polybrominated Diphenyl Ethers (PBDEs)
See IEC 62474 link below for substance details
EU REACH Reportable substances
See Table 5 – Pages 14-28
Halogen Content (Not necessary for metals and ceramic materials)
Chlorine (Cl)
Bromine (Br)
EU RoHS Phthalates (Not necessary for metals and ceramic materials)
Bis (2-ethylhexyl) phthalate (DEHP)
Butyl benzyl phthalate (BBP)
Dibutyl phthalate (DBP)
Diisobutyl phthalate (DIBP)

Table 7: Test requirements

Appendix 2: Required format for Supplier Material Declarations

All supplier of components, packaging and packing materials must provide MACOM with a material declaration in the below format.

MATERIALS DECLARATION FORM									
PART NUMBER / PART DESCRIPTION: _____					PN XXXX _____				
Subparts (Subpart No.)	Description	Weight (g)/(mg)	Qty Per	Overall Weight (g)	Substance Name	Substance Weight in %	CAS Number	Compliance Statement for Trade Secret Items / Additional Information	RoHS Exemption
100001111	PCB	1.4600	1	1.4600	Ceramic (Al ₂ O ₃)	96.00	1344-28-1		
					Silver (Ag)	2.00	7440-22-4		
					Nickel	1.00	7440-02-0	Surface Finish	
					Gold	1.00	7440-57-5	Surface Finish	
100002222	CAPACITOR	0.0070	7	0.0490	BaTiO ₃	89.50	12047-27-7		
					Nickel	8.00	7440-02-0		
					Silver	1.80	7440-22-4		
					Tin	0.70	7440-31-5		
10003333	INDUCTOR	0.0170	4	0.0680	Copper	99.9	7440-50-8		
					Mod. Polyurethane	0.1	9009-54-5	Surface Finish	
100004444	IND CHIP	0.0010	1	0.0010	Aluminium Oxide	90.00	1344-28-1		
					Nickel	5.00	7440-02-0		
					Copper	3.00	7440-50-8		
					Tin	2.00	7440-31-5		
100005555	HMP SOLDER	0.0080	1	0.0080	Lead	93.50	7439-92-1		Exemption 7(a)
					Tin	5.00	7440-31-5		
					Silver	1.50	7440-22-4		
10000666	METAL COVER	1.1200	1	1.1200	Copper	65.00	7440-50-8		
					Zinc	20.00	7440-66-6		
					Iron	14.00	7439-89-6		
					Others	1.00	Trade secret	RoHS and REACH Compliant Material	
			Overall Weight	2.7060					
Company Name	"Insert Supplier name"								
Complied by	John Smith								

The following information is required;

- Part Number/Part Description
 - Top level Part number or assembly number for which the declaration is relevant
- Subparts
 - Individual number for each subpart within the top level part or assembly
- Description
 - Materials/Subclass description of the individual subparts.
 - Example: Die, Mold Compound, Lead frame, Die Attach, Wire, Lead finish
- Weight
 - Weight of individual subpart in (g) or (mg)
- Quantity Per
 - Number of subparts within the top level part or assembly
- Overall Weight
 - The total weight of subpart.
- Substance name
 - Full chemical name of the substance.
- Substance Weight
 - Substance weight should be percentages, milligrams or grams
 - Sum of substance weight in % must add up to 100% of weight of the subpart
- CAS Number
 - Accurate CAS numbers must be provided for each substance
 - Trade secret can be entered here if the substance is proprietry, however, supplier must provide a **signed** Certificate of Conformance for any trade secret substances.
- Compliance Statement for Trade Secret items / Additional information
 - Supplier must include a statement “RoHS and REACH Compliant Material” for any trade secret items
 - Surface finish substances must also be highlighted
- RoHS Exemptions
 - Supplier must list any RoHS exemptions relevant to the part or subpart.al format only
 - Example: Exemption 7(a) for High Temperature Solder

Appendix 3 – Compliance & Conflict Minerals Information

Compliance Information

- MACOM Environmental Compliance Mailbox: product_compliance@macom.com
 - Submitting Supplier Compliance data and test reports
 - Information requests regarding Compliance
 - Reporting grievances
- EU RoHS and EU REACH Statement
 - <http://www.macom.com/about/sustainability-quality--reliabil>
- IEC 62474 Database – All restricted and reportable substances relevant to electronic products
 - <http://std.iec.ch/iec62474/iec62474.nsf/MainFrameset>
- EU RoHS Directive
 - <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011L0065&from=EN>
- EU REACH Candidate List
 - <http://echa.europa.eu/candidate-list-table>
- EU REACH Authorisation List
 - <http://echa.europa.eu/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/authorisation-list>

Conflict Minerals Information

- MACOM Conflict Minerals Mailbox: conflictminerals@macom.com
 - Submitting Supplier Conflict Minerals data and CMRTs
 - Information requests regarding Conflict Minerals
 - Reporting grievances
- MACOM Conflict Minerals Policy
 - <http://www.macom.com/about/sustainability-quality--reliabil>
- EICC-GeSI Conflict Minerals Reporting template
 - <http://www.conflictreesmelter.org/ConflictMineralsReportingTemplateDashboard.htm>
- CFSP Procedures and Protocols:
 - <http://www.conflictreesourcing.org/audit-protocols-procedures/>
- CFSP Compliant and Active Smelters:
 - <http://www.conflictreesourcing.org/conflict-free-smelter-refiner-lists/>
- OECD Due Diligence
 - <http://www.oecd.org/corporate/mne/GuidanceEdition2.pdf>
- SEC Final Rule
 - <http://www.sec.gov/rules/final/2012/34-67716.pdf>