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# **MOBILE PHONE PARTNERSHIP INITIATIVE (MPPI) - PROJECT 1.1**

## **GUIDELINE ON THE REFURBISHMENT OF USED MOBILE PHONES**

**Revised and Approved Text  
March 25, 2009**

## **Foreword**

The previously approved Guideline on Refurbishment of Used Mobile Phones has been reviewed in a facility type of environment to reflect the practical situation. The Mobile Phone Working Group would like to express its appreciation to Fonebak and ReCelular for evaluating the guideline and proposing revisions to previously approved guideline.

In addition, special thanks is extended to the chair of the Project Group 1.1, Ms Brandi Farwig from ReCellular, for ensuring that all proposed changes and comments from the Project Group 1.1 participants have been reviewed and incorporated in the revised guideline.

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**EXECUTIVE SUMMARY**

The guideline on the refurbishment of used mobile phones is about making mobile phones available for reuse. It is intended to provide guidance for refurbishment facilities, and it offers advice and guidance in three parts.

**Part 1** introduces the background, purpose and use of the guideline document.

**Part 2** provides guidance applicable to refurbishment facilities. This part covers, first, product handling and refurbishment, including acceptance of used equipment, storage, handling, cleaning of used mobile phones, disassembly, soldering, reassembly, authorized software use and compliance with import requirements. It then covers management of components and materials removed from used mobile phones, including guidance on handling of components destined for reuse, used mobile phones, or components destined for materials recovery and recycling. It discusses dealing with process residuals, packaging and transport of used mobile phone components and residuals destined for materials recovery and recycling. Finally, it covers administrative measures such as record keeping, environmentally sound management, regulatory authorizations, personnel training and inspections and monitoring.

**Part 3** provides guidance for the remarketing of refurbished mobile phones and covers compliance with applicable operational standards, labeling of refurbished mobile phones and compliance with import requirements.

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## **1. INTRODUCTION**

### **1.1. Background**

1.1.1 This guideline, developed by project group 1.1, covers one of the four project areas under the Mobile Phone Partnership Initiative (MPPI) through the Basel Convention. Project 1.1 addresses the reuse of refurbished mobile phones and is intended as guidance for product reuse and refurbishment facilities.

1.1.2 The origins of this guideline are based on an original CTIA document ‘CTIA for the Refurbishment of Used Wireless Devices’ published 22nd October 2003.<sup>1</sup> This original document was written voluntarily by the industry for use in the USA only. As a result, terminology and specific legal references have been amended or removed to produce a guideline that is more generic and relevant to a wider international audience. The content structure has also been amended for the same reasons.

### **1.2. Purpose**

1.2.1 It is acknowledged that for business to be sustainable it must promote sound environmental management of good quality. In this respect reuse can often represent the highest form of environmental management. This guideline sets out to promote reuse in a manner that benefits the environment, without compromising either product integrity or consumers’ health and safety.

1.2.2 This guideline is intended to encourage companies that refurbish, including repair and recondition, used mobile phones to implement practices in an environmentally sound manner which will protect human health and the environment, and to facilitate a process whereby mobile phones re-entering the market comply with applicable technical performance standards and applicable regulatory requirements.

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<sup>1</sup> [www.recyclewirelessphones.org/documents/FINALCTIA-CollectionandTransport10-10.pdf](http://www.recyclewirelessphones.org/documents/FINALCTIA-CollectionandTransport10-10.pdf)

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1.2.3 This guideline will also assist those individuals, companies or agencies involved in collection schemes, transportation of used and refurbished mobile phones, and consumers who use the refurbished mobile phones.

### **1.3. Use of the Guideline Documents**

1.3.1 Use of this guideline is geared to:

- Refurbishment facilities
- Any organization that is involved in buying or selling refurbished mobile phones
- Repair facilities
- Environment and other regulatory agencies and authorities
- Environment and community groups
- Telecom operators
- Manufacturers
- Consumers of refurbished mobile phones
- Distributors of mobile phones.

## **2. GUIDELINE APPLICABLE TO REFURBISHMENT FACILITIES**

### **2.1. Introduction**

2.1.1 The refurbisher that disassembles and/or changes any part, component, software or accessory shall be responsible for the quality of the introduced component; workmanship of the activities carried out and end results of the activities. When making any changes, the refurbisher shall make sure and take responsibility for ensuring that the product meets all relevant regulatory requirements relating to the market into which the product is to be resold. These shall include, but not be limited to telecom standards, product safety, Electro Magnetic Compatibility (EMC), Electro Magnetic Field (EMF) exposure limit i.e. Specific Absorption Rates (SAR) and producer responsibility. In the following text, examples are

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given on specific activities that are known to have impact on the performance of the product in these respects.

### **PRODUCT HANDLING AND REFURBISHMENT**

Where products are still under the manufacturer's warranty repair or refurbishment activity should only be carried out in accordance with the manufacturer's warranty conditions. Failure to do so could invalidate the warranty. Typically, manufacturer's warranties may be invalidated where some, or all, of the following conditions occur:

- The work is carried out by unauthorized persons or service facilities.
- Where parts or software is used other than that approved by the manufacturer.
- Product type or serial numbers have been removed, altered or damaged.
- The equipment has been damaged by unapproved ancillary equipment, including batteries and chargers.

Each mobile phone is identified by a unique numerical code. In North America this is the Electronic Serial Number (ESN) or Mobile Equipment ID (MEID). For GSM phones it is termed International Mobile Electronic Identification (IMEI). Except where permitted by regulations, removal of ESN/MEID or changing IMEI and calibration data is not permissible practice or condoned within this Guideline, as it may result in non compliance with technical standards.

Personal data is a big issue at present particularly on modern handsets that are capable of taking pictures / receiving emails etc. Many end users are not aware as to how to erase this data from their handsets before they are recycled or refurbished. For further information on how to erase personal data users should refer to original manufacturer's instructions.

Refurbishment facilities, receiving used mobile phones, should ensure personal data is erased as per original manufacturer's instructions to make the data inaccessible to consumers, and in accordance with all applicable regulations.



## 2.2. Acceptance of Used Equipment

2.2.1 Facilities that refurbish used mobile phones should take steps to identify and sort used mobile phones that are to be refurbished from those that should be recycled for raw materials recovery due to damage, wear, age or performance. For instance:

- Mobile phones destined for refurbishment should be managed in a manner that will avoid cosmetic damage to external surfaces and accessories so as to maximize reuse value.
- Mobile phones not suited for refurbishment and any waste they may generate should be stored and transported in conformance with applicable laws and regulations.

The process by which used mobile phones, which may have been already evaluated, are assessed to determine to which extent they are suitable for re-use with or without repair or refurbishment. As a minimum, this assessment will include:

- a) An “air” or “ping” test – calling a test number (which will vary from country to country and from network to network), to generate a service response, and indication of whether or not the handset is functional.
- b) A “loop back” test – blowing or speaking into the handset, whilst on a call, to determine whether or not the microphone and speaker are functional.
- c) A screen and keypad test – switching the handset on and pressing each of the keys, to indicate whether or not the LCD and keys are functional.
- d) A battery test – testing the battery with a volt meter to indicate whether or not the battery is functional.

MPPI project 2.1 addresses the matter of collection; testing, evaluation, labeling; and transboundary movement of used mobile phones in more detail.

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- 2.2.2 Care should be taken to ensure that prolonging the life of a mobile phone does not result in the product exceeding the expected life of some of the components in the product (a problem not unique to mobile phones). This may lead to a change in the radio frequency (RF) characteristics, which may affect performance. An example of this may be the failure of the on-board backup battery, which could cause the loss of software parameters and more importantly RF calibration values (2.7 refers).
- 2.2.3 Condition alone is not always the only deciding factor for reuse. Market demand for individual models of refurbished mobile phones will be a major factor in the destiny of the product. For example, a company in Australia uses the weight of a handset to quickly determine the destiny of the product.
- 2.2.4 Refurbishment facilities will have an economic incentive to receive and manage used mobile phones in a manner that optimizes the value of the refurbished mobile phones. Most can be expected to have receiving, screening and sorting operations that will divert some portion of the mobile phones received to materials recovery.
- 2.2.5 All refurbishers should adhere to only selling or transporting mobile phones that are tested for functionality, unless it is to a properly authorized recycling vendor or outsource repair center.

### **2.3. Storage and Handling of Used Mobile Phones**

- 2.3.1 All refurbishing companies should utilize a reusable, recyclable or biodegradable material as a storage and packaging medium for used mobile phones, and encourage such further use.
- 2.3.2 Refurbishment facilities should store and handle used mobile phones prior to refurbishment in a manner that protects the mobile phones and reduces the potential for releases into the environment and injuries to workers.

## **2.4. Cleaning Used Mobile Phones**

2.4.1 In general, only benign cleaning solutions should be used to clean used mobile phones. If not, refurbishers should use cleaning solutions in an environmentally sound, efficient and safe manner.

2.4.2 Where applicable, local laws and regulations should always be adhered to. For further information please refer to the relevant Basel guidelines "Technical Guidelines on Hazardous Waste from the Production and Use of Organic Solvents (Y6)"<sup>2</sup>.

## **2.5. Disassembly**

2.5.1 When disassembling mobile phones (or components of such devices) the refurbishment facility should ensure the appropriate tools are used where necessary to prevent damage. In particular, care must be taken to avoid damage or stress to any internal case/cover clips or catches. Damage or stress to these clips or catches may have an effect on RF integrity or electrical contacts. Care should also be taken to preserve the value of the component or material to a practical extent and protect workers and the environment.

2.5.2 The risks associated with disassembly and repair operations are generally minimal, because the materials are in the form of solid pieces that are unlikely to be dispersed into the workplace or the environment.

## **2.6. Soldering**

2.6.1 Soldering joints should be of the same condition and quality as contained in the original product. All soldering activities should be undertaken in conformance with regulatory, occupational health and safety requirements to minimize worker exposure to fumes and dust.

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<sup>2</sup> <http://www.basel.int/meetings/sbc/workdoc/old%20docs/tech-y6.pdf>

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2.6.2 As restrictions on the use of lead and its derivatives come into force in many countries, manufacturers are transferring to the use of lead-free solder technologies. Refurbishment facilities should ensure that any solder used during the refurbishment process is compatible with the original solder used within the mobile phone, and remains compatible with any substance restriction in the destination market.

### 2.7. Refurbishment

2.7.1 To ensure refurbishment organizations can repair / refurbish mobile handsets to the correct technical specification, original or equivalent spares should be readily available with technical guidance. This will go some way to reducing demand for non Original Equipment Manufacturer's (OEM) spares and ensure handsets destined for reuse operate as per the original manufacturer's specification."

2.7.2 Only manufacturer specified genuine or refurbished genuine parts should be used. In particular, non-genuine parts must not be used for safety or system critical functions. Parts should be sourced from suppliers with independent third party accredited quality management systems. Parts should be subject to receiving inspection suitable to function to assure the quality and performance level of the parts. Corrective action processes should be in place to ensure the effective management of quality issues.

2.7.3 In addition to the general provisions in Section 3.1, all refurbishment activities should be consistent with the following:

2.7.4 **Transceivers:** There are numerous performance guidelines for mobile phones governing user exposure to RF emissions (SAR rating). The failure to use appropriate replacement parts has the potential to alter a product's compliance with these guidelines and standards and should therefore be avoided. Refurbishment facilities should ensure that parts used in the refurbishment of mobile phones including electrical devices, cases and covers are of the type and

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design that will allow the mobile phones to comply with the rated operational characteristics specified by the original equipment manufacturer.

For example, the refurbisher could conduct a radiated RF test of outer casings and antenna, which identifies field strength levels, to ensure that the replacement parts (for instance plastic housings) have equivalent shielding/performance to the OEM parts. Failure to ensure equivalent shielding/performance could result in excess RF leakage and/or poor handset performance.

**2.7.5 Antennas:** Replacement antennas should have the same part number as the original equipment or otherwise not alter the mobile phones operational characteristics (including SAR) as specified by the original equipment manufacturer.

**2.7.6 Batteries:** Replacement batteries should include the same safety circuitry and insulation found with the original equipment. All replacement batteries must allow the mobile phone to conform to the rated operational characteristics (including SAR) specified by the original equipment manufacturer, and be able to hold an appropriate charge<sup>3</sup>.

The visual and functional evaluation for batteries and chargers used in refurbished mobile phones should include the 4 point inspection process to include:

- (1) verification of the protection circuitry and insulation in accordance to the original phone manufacturer's specifications,
- (2) verification of the battery capacity,
- (3) verification of the fit and function with the handset, and

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<sup>3</sup> Appropriate charge, according to refurbishment and battery recycling industry, is 80%. Once the battery has been charged (either through the phone it accompanies, or by using commercial charging and measuring equipment) it should be tested with a voltmeter to determine whether or not the battery is functional and hold an 80% charge. Another criterion to check batteries is to check for the proper functioning on the internal protection circuit, which protects the Li-Ion cell from operating outside the recommended ranges. This protection circuit is included inside all OEM manufactured batteries and minimizes the possibility of any type of cell meltdown or explosion. This will ensure that the customer gets good value and will help ensure that importing countries do not end up getting unsafe or short-life batteries.

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(4) where applicable, battery technology is tested for proper operation with the handset.

In accordance with appropriate waste shipping regulations any battery that fails the inspection process and is rejected should be placed in a specifically designated container for proper transport to a recycling facility. Steps such as: taping battery terminals, individually bagging batteries, or placing batteries in a lidded fire proof barrel are ways to prevent short circuiting.

2.7.7 End-of-Life batteries and any associated circuit boards or electronic assemblies containing lead based solders are to be managed in an environmentally sound way, and in accordance with the Basel Convention when destined for transboundary movement.

2.7.8 **Chargers (AC Adaptors):** Replacement chargers should include the same safety circuitry, insulation and filtering found with the original equipment. All replacement chargers must have the same output characteristics and allow the mobile phone and charger together to conform to all relevant regulatory requirements.

2.7.9 **Power Level:** The maximum power level for a particular model must not be exceeded as a result of refurbishment. Technical standards for mobile phones usually specify a maximum power level and an allowable tolerance above and below this nominal value.

2.7.10 Refurbishers should be aware that in designing and testing mobile phones, the manufacturer will have programmed the phone for a maximum power level that fits within these bounds. This will generally be done to optimize communications performance while at the same time maximizing battery life.

2.7.11 It may also be the case that the maximum allowable transmit power for a particular model is selected to ensure compliance with standards for human exposure to RF fields (SAR). Hence, increasing the maximum power level may cause the mobile phone to be non-compliant with these safety standards. In some

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countries, the organization changing a mobile phone parameter such as the maximum transmit power would be regarded as the new supplier of the device to the market and would be liable to demonstrate compliance with all relevant regulations, independent of the original manufacturer.

- 2.7.12 Any part, component, or accessory replaced must allow a mobile phone, as a whole, to function in accordance with the design and rated operational characteristics specified in the original equipment manufacturer's authorization. Accordingly, refurbishment facilities must ensure that their activities are undertaken in full compliance with these and other applicable rules.

### **2.8. Authorized Software Use**

- 2.8.1 Facilities should not add or update software for refurbished mobile phones that would change the rated operational characteristics specified by the original equipment manufacturer, as this may affect compliance of the mobile phone with standards for interference or for human exposure to RF transmissions.

- 2.8.2 It is also useful to ensure that the software revision operating in the mobile phone is correct as per manufacturer information, as some handsets have been reported to adversely affect network performance with the wrong software version. In addition, when changing software (even if an approved and verified version), the RF transmitter calibration data can be lost. Calibration is carried out by the original equipment manufacturer (often when special calibration test points are only available by virtue of the partial state of assembly), using product specific software, test jigs and measurement equipment. Unless a mobile phone refurbishment centre has the necessary facility to do this, changing software should not be carried out.

## **MANAGEMENT OF COMPONENTS AND MATERIALS REMOVED FROM USED MOBILE PHONES**

### **2.9. Handling of Components Destined for Reuse**

2.9.1 Refurbishment facilities should ensure that mobile phones, removed components and other materials destined for reuse are handled in a suitable manner that preserves their value. Additionally, products for reuse should be returned to the market in a timely fashion, again to maximize residual value.

### **2.10. Handling of Used Mobile Phones or Components Destined for Materials Recovery and Recycling**

2.10.1 Refurbishment facilities may receive or generate used mobile phone components and materials that are not suitable for reuse. These used mobile phone components and materials should be managed on site in a manner that preserves their value for material recovery and recycling, and energy recovery. Refurbishment facilities should be encouraged to minimize the landfilling of used mobile phone components and materials and arrange for appropriate recovery where practicable. Refurbishment facilities should use the Basel Convention guidance documents to ensure that downstream materials recovery and recycling facilities operate in a manner that is protective of the environment and worker health and safety. In addition, where waste arises from refurbishing factories, they should be encouraged to minimize landfilling of waste, including products and materials, in accordance with appropriate regulations. MPPI project 3.1 addresses the material recovery and recycling of end-of-life mobile phones in more detail.

2.10.2 The items removed from used mobile phones may include batteries, electronic components, circuit boards or other items and should be managed in an environmentally sound manner and in accordance with the Basel Convention when destined for transboundary movement.



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- 2.10.3 In the case of materials that are directly usable as commodities, the refurbishment facilities should handle the materials consistent with their value, for example in a manner similar to that used for the virgin commodities for which they substitute.
- 2.10.4 In the case of materials that can be used only for purposes of basic materials recovery, the facilities should handle the materials on-site so as to protect worker's health and safety and the environment. The techniques that may be utilized for whole mobile phones include segregation of materials and labeling or marking of containers and indoor or covered outdoor storage areas. Techniques that may be utilized for shredded mobile phones include: impermeable containers, covers and seals for the containers, foundations free of gaps and cracks, secondary containment, dust suppression and control equipment, run-on and run-off controls and elevated storage racks or platforms. The materials should then be sent to a facility that adheres to the Basel Convention guidance documents.
- 2.10.5 Refurbishment facilities should be aware of the Basel Convention guidance documents on "Transboundary Movements of Hazardous Wastes destined for Recovery Operations" and on "Preparation of Technical Guidelines for the Environmentally Sound Management of Wastes Subject to the Basel Convention."

### **2.11. Handling of Process Residuals**

- 2.11.1 Refurbishment facilities should handle residual materials on-site in a manner that protects against releases into the environment and ensures that they are safely transported to an appropriate facility.
- 2.11.2 Although most of the materials removed from used mobile phones during the refurbishment process can probably be sent for materials recovery and recycling, some residuals may, as a last resort, need to be landfilled or incinerated. Different process residuals may require different measures to be taken both on-site and off-

site. Accordingly, facilities should first characterize their process residuals, using testing or knowledge of the materials and processes used at the facility.

2.11.3 The refurbishment facility should ensure that the residuals are delivered to landfill or an incinerator that is suitable for the specific residual, properly authorized by relevant regulators, well-maintained, and well-operated. Any residues from the landfill or incinerator operations (e.g., landfill gas, leachate, incinerator ash, or scrubber water) should also be handled in an environmentally protective manner.

2.11.4 Any residuals that qualify as hazardous wastes will be subject to stringent requirements for design and operation of storage units, labeling, manifesting, transport, pretreatment, and delivery to a permitted hazardous waste facility.

2.11.5 Although non-hazardous residuals may not be subject to such requirements, measures should be taken on-site to protect against releases. As for shredded mobile phones (2.11.14) the techniques that may be utilized include indoor or covered outdoor storage areas, impermeable containers, covers and seals for the containers, foundations free of gaps or cracks, secondary containment, dust suppression and control equipment, run-on and run-off controls, elevated storage racks or platforms, segregation of materials, and labeling or marking of containers and storage areas.

2.11.6 Refurbishment facilities should also be aware of the Basel Convention technical guidelines for the identification and environmentally sound management of plastic wastes and for their disposal, on specially engineered landfill (D5); and the draft technical guidelines for the recycling/reclamation of metals and metal compounds (R4).<sup>4</sup> These guidelines are available from the Basel Secretariat.

## **2.12. Packaging and Transport of used Mobile Phones, Components and Residuals Destined for Materials Recovery and Recycling**

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<sup>4</sup> [www.basel.int/text/documents.html](http://www.basel.int/text/documents.html)

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- 2.12.1 In the case of domestic movements, refurbishment facilities should ensure that all mobile phones, components (e.g. batteries), and residuals destined for materials recovery and recycling are prepared for shipment and transported in a safe and secure manner that complies with any applicable hazardous materials transport regulations of the country and/or region.
- 2.12.2 In the case of transboundary movements, refurbishment facilities should ensure that all mobile phones, components (e.g. batteries), and residuals destined for materials recovery and recycling are prepared for shipment and transported in full compliance with the Basel Convention.
- 2.12.3 Some materials destined for material recovery and recycling, such as shredded mobile phones and certain types of batteries, may pose a hazard during transportation. In order to minimize such hazards and protect against releases into the environment, it is essential that the materials be shipped in a safe and secure way. Such handling is also important to preserve the materials being shipped so that they can be recycled properly. For further information please refer to the relevant UN recommendations on transport of dangerous goods<sup>5</sup>
- 2.12.4 To the extent that any collected materials may be hazardous materials, the applicable regulations (if any) will depend upon various factors such as the nature of the hazards, the quantities shipped, the packaging utilized, and the modes of transportation employed (e.g. truck or aircraft). Relevant requirements may address such issues as packaging, hazard communication (e.g. labeling, marking, or placarding), shipping papers, emergency response, registration, training, and security.
- 2.12.5 Although refurbishment facilities should ensure that the materials they are sending off-site are prepared for shipment and transported properly, they may need or want to work with the relevant carrier(s) that transport materials to determine the specific measures that are required under the regulations or are

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<sup>5</sup> <http://www.unece.org/trans/danger/publi/unrec/English/Recommend.pdf>

otherwise appropriate. In some cases, the transportation provider may also implement one or more of these measures.

## **ADMINISTRATIVE MEASURES**

### **2.13. Record Keeping**

2.13.1 Refurbishment facilities should maintain records of all mobile phones received and their disposition. Refurbishment facilities should maintain records of:

- Number of mobile phones received
- IMEI / Serial numbers
- Modifications to build state / software versions
- Date and location from which the mobile phones were shipped, and
- Disposition of all mobile phones received by the facility.

Records should be kept for a period that is consistent with relevant national or local regulations and practice.

2.13.2 It is essential that organizations managing the refurbishment and redistribution of used mobile phones keep accurate records of every mobile phone received and handled. Such action is necessary to track mobile phones re-entering the market and to identify responsibility for repair associated with these refurbished phones. Where appropriate, this should include tracking each mobile phone received using its electronic serial number (ESN) or equivalent identifier.

### **2.14. Environmentally Sound Management (ESM)**

2.14.1 Refurbishment facilities should have systems in place for defining specific ESM objectives, developing plans to meet the objectives, implementing such plans, and monitoring progress towards achievement of the objectives. Some facilities

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may also wish to have their environmental management systems reviewed and certified by an appropriate third party to assure stakeholders that effective management systems are in place.

2.14.2 All certified refurbishers should be compliant with an ESM policy and an ISO-14001, or EMAS, or similar certification, including those that are “tailor made” for individual circumstances, such as for specific industrial sectors or enterprises.

2.14.3 Further information on ESM can be found on the Internet:

Basel Convention, ESM : [www.basel.int/industry/index.html](http://www.basel.int/industry/index.html)

UNEP, Best Practices: [www.unep.fr/en/](http://www.unep.fr/en/)

OECD, ESM: [www.oecd.org/dataoecd/23/31/39559085.pdf](http://www.oecd.org/dataoecd/23/31/39559085.pdf)

### **2.15. Regulatory Authorizations**

2.15.1 Refurbishment facilities dealing with products and materials that are defined by their nation as being ‘waste’ are required to hold all relevant waste management permits, licenses, or other authorizations required by their countries regulatory authorities.

2.15.2 Refurbishment facilities should perform at regular intervals evaluations to identify applicable local authorizations and to determine how these requirements apply to the facility. Refurbishment facilities should be in compliance with all applicable local regulations and permits, or other authorizations that are related to the environment or human health and safety.

2.15.3 Where refurbishers or other parties, are exporting refurbished mobile phones, care should be taken to ensure compliance with all applicable laws governing refurbished product trade.

## **2.16. Personnel Training**

2.16.1 Refurbishment facilities should ensure that all of their employees are thoroughly familiar with proper procedures for carrying out their responsibilities during normal facility operations and emergencies. This includes proper training with respect to the refurbishment of mobile phones, the use of testing and refurbishment equipment, and the handling of potentially hazardous materials.

## **2.17. Inspections and Monitoring**

2.17.1 Refurbishment facilities dealing with products that are potentially hazardous to the health and safety of their workers and the environment are required to have processes, documented or otherwise, in place to ensure these products are regularly inspected and monitored, as required by their countries' regulatory authorities.

# **3. GUIDELINE FOR THE REMARKETING OF REFURBISHED MOBILE PHONES**

## **3.1. Compliance with Applicable Operational Standards**

3.1.1 Any organization that remarkets used mobile phones should ensure that these mobile phones continue to meet all applicable industry and government standards and requirements, including the original product's rated operational characteristics. It is worth noting that mobile phones designed for a particular market, or region, may only be compliant with standards relevant to that market or region.

## **3.2 Labeling of Refurbished Mobile Phones**

3.2.1 A refurbisher or other party who reconditions and repairs mobile phones should ensure that their practices are consistent with applicable telecommunications and other legislation. In some countries (e.g. Australia, USA) an organisation making certain changes to a mobile phone would then be regarded as the new

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supplier to the market and hence responsible for demonstrating the same compliance provisions as the original manufacturer. This may not be the case in all countries and is likely to vary with the extent of product refurbishment.

3.2.2 It is also the case that there may be specific labeling requirements via telecommunications or other regulations for such refurbished mobile phones. These distinctions may be especially important where the device is intended for resale in another country. Where refurbishment affects the original manufacturer's guarantee provisions, consumers should be aware of this fact. Labeling may be on the mobile phone itself or in the product packaging as determined by applicable regulations listed above.

3.2.3 These labeling provisions encourage any party refurbishing or remarketing mobile phones to inform the subsequent purchaser of that device that the product is used and/or refurbished. It is intended that these labeling provisions will provide the subsequent purchaser with the contact information necessary in the case of a faulty product. This information can be communicated to subsequent purchasers by way of a label placed on the product. Additional information can be provided on the product packaging, or through a product information insert. For refurbished mobile phones, any information regarding the status of the mobile phone must conform to the labeling requirements as described above.

3.2.4 Where possible, information on opportunities for subsequent users to properly recycle the refurbished and/or used mobile phones should also be provided through use of a label on the product, or on the product packaging, or through a product information insert.

### **3.3 Compliance with Import/Export Requirements**

3.3.1 If any handsets that are not refurbished and require shipments across boundaries these shipments should follow the Guideline for Transboundary Movement of Collected Mobile Phones.

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- 3.3.2 Where refurbishers are exporting refurbished mobile phones to other countries care should be taken to ensure compliance with all applicable laws governing product imports, technical standards, labeling and health and safety requirements. Used mobile phones resold into foreign markets should be packaged and handled in a manner that is consistent with their planned reuse.
- 3.3.3 Additionally, for specific geographies, there may be warranty regulations affecting refurbished handsets etc. For example, the European Directive on Certain Aspects of the Sale of Consumer Goods and Associated Guarantees<sup>6</sup>. Where such warranties are in place, these should be adhered to.
- 3.3.4 In addition to the labeling requirements for refurbished RF devices, some countries may require that consumers be informed that a mobile phone has been previously used and/or refurbished.

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<sup>6</sup> Directive 1999/44/Ec Of The European Parliament And Of The Council of 25 May 1999 on certain aspects of the sale of consumer goods and associated guarantees



## Annex I

### Glossary of Terms

**Note:** *These terms were developed for the purpose of the overall Guidance Document and individual project guidelines, and should not be considered as being legally binding, or that these terms have been agreed to internationally. Their purpose is to assist readers to better understand this Guideline and the overall Guidance Document. The processes of dismantling, refurbishment or reconditioning and repairing may entail the removal of batteries, electronic components, printed wiring boards or other items which should be managed in an environmentally sound manner and in accordance with the Basel Convention when destined for transboundary movement.*

**Basel Convention:** UNEP's Convention of March 22, 1989 on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which came into force in 1992.

**Components:** parts or items removed from used mobile phones which may include batteries, electronic components, circuit boards, keyboards, displays, housing or other parts or items

**DfE:** Design for Environment; meaning a product has been designed to reduce environmental impact throughout its whole life cycle.

**Dismantling:** (manual) separation of components/constituents in a way, that recycling, refurbishment or reuse is possible.

**Disposal:** means any operations specified in Annex IV of the Basel Convention.

**EMC:** Electromagnetic compatibility (EMC) means the ability of equipment to function satisfactorily in its electromagnetic environment without either introducing intolerable electromagnetic disturbances to other equipment in that environment, or being adversely affected by the emission of other electrical equipment.

**EMF:** Electromagnetic Fields (EMF) are a combination of both electric and magnetic fields. EMF occurs naturally (light is a natural form of EMF) as well as a result of human invention. Nearly all electrical and electronic devices emit some type of EMF. Safety standards are applicable, but these may vary from country to country.

**Eco-efficiency:** producing economically valuable goods and services with less energy and fewer resources while reducing the environmental impact (less waste and less pollution) of their production. In other words eco-efficiency means producing more with less. It may include, for example, producing goods through recycling when that is more efficient, and more environmentally friendly, than production of the same goods with primary resources and methods.

**End-of-life mobile phone:** a mobile phone that is no longer suitable for use, and which is intended for disassembly and recovery of spare parts or is destined for material recovery and recycling or final disposal. It also includes off-specification mobile phones which have been sent for material recovery and recycling or final disposal

**Environmentally Sound management:** taking all practicable steps to ensure that used and/or end-of-life products, or wastes are managed in a manner which will protect human health and the environment.

**Evaluation:** the process by which collected used mobile phones are assessed to determine whether or not they are likely to be suitable for re-use. This assessment may include:

- a) A visual check
- b) A 'power-on' check
- c) A check that the model is included / not included on a list of handsets provided by the refurbishment company.

**Hydrometallurgical processing:** processing of metals in cyanide, and/or strong acids such as aqua regia, nitric acid, sulphuric acid, and hydrochloric acid.

**Incineration:** a thermal treatment technology by which municipal wastes, industrial wastes, sludges or residues are burned or destroyed at temperatures ranging from 1000°C to more than 1200°C (high temperature incineration used mainly to incinerate hazardous wastes) in the presence of oxygen resulting from the rapid oxidation of substances. Most of them have an air pollution control equipment to ensure the emission levels meet the requirements prescribed by the regulatory authorities.

**Integrated copper smelter:** a facility, or related facilities in the same country under the same ownership and control, that melts metal concentrates and complex secondary materials that contain - among others - copper and precious metals, using controlled, multi-step processes to recycle and refine copper, precious metals and multiple other metals from managed product streams.

**Labelling:** the process by which individual or batches of mobile phones are marked to designate their status according to the guideline developed under the project 2.1.

**Landfilling:** the placement of waste in, or on top of ground containments, which is then generally covered with soil. Engineered landfills are disposal sites which are selected and designed to minimize the chance of release of hazardous substances into the environment.

**Leachate:** contaminated water or liquids resulting from the contact of rain, surface and ground waters with waste in a landfill.

**Life cycle management:** holistic way to consider the environmental issues associated with a substance, product or process from resource utilization, through manufacture, transportation, distribution, use, to waste management and disposal of residues from treatment or recycling operations.

**Material Recovery:** means relevant operations specified in Annex IVB of the Basel Convention.

**Mechanical Separation:** mechanical means to separate a mobile phone into various components or materials.

**Mobile phone (sometimes called a cellular phone or cell phone):** portable terminal equipment used for communication and connecting to a fixed telecommunications network via a radio interface (taken from International Telecommunication Union K.49 (00), 3.1). Modern mobile phones can receive, transmit and store: voice, data, and video.

**Printed wiring board:** also called a printed circuit board, consisting of integrated chips, resistors, capacitors and wires.

**Pyrometallurgical processing:** thermal processing of metals and ores, including roasting and smelting, remelting and refining.

**RoHS:** Directive of the European Parliament and the Council on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment.

**RF:** describes electromagnetic energy transmitted through radio and microwaves.

**Recycling:** means relevant operations specified in Annex IVB of the Basel Convention.

**Refurbishment or Reconditioning:** the process for creating a refurbished or reconditioned mobile phone.

**Refurbished or reconditioned mobile phone:** a mobile phone that has undergone refurbishment or reconditioning, returning it to a satisfactory working condition fully functional for its intended reuse and meeting applicable technical performance standards and regulatory requirements including the original product's rated operational characteristics. The intended reuse must include full telephony capability.

**Repairing:** a process of only fixing a specified fault or series of faults in a mobile phone.

**Reuse:** a process of using again a used mobile phone or a functional component from a used mobile phone, possibly after repair, refurbishment or upgrading.

**SAR:** stands for Specific Absorption Rate, which is the amount of Radio Frequency (RF) absorbed by the body. The unit of measurement is in Watts per Kilogram (W/Kg). SAR is determined, in laboratory conditions, at the highest certified power level of the mobile phone. When in use, the actual SAR can be well below this value due to automatic power control by the mobile phone. The SAR of each model of mobile phone is measured as part of the safety standard compliance process.

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**Segregation:** sorting out mobile phones from other (electronic) wastes for possible reuse or for treatment in specific recycling processes.

**Separation:** removing certain components/constituents (e.g. batteries) or materials from a mobile phone by manual or mechanical means.

**Transport of Dangerous Goods:** UN Recommendations on the transport of dangerous goods which deals with classification, placarding, labeling, record keeping, etc. to protect public safety during transportation.

**Treatment:** means any activity after the end-of-life mobile phone has been handed over to a facility for disassembly, shredding, recovery, recycling or preparation for disposal.

**Upgrading:** the process by which used mobile phones are modified by the addition of the latest software or hardware.

**Used Mobile Phone:** a mobile phone, which its owner does not intend to use it any longer.

**WEEE Directive:** Directive of the European Parliament and the Council on Waste Electrical and Electronic Equipment.

**Wastes:** substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law.