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ANNEXES 1 to 5

ANNEXES

to the

Commission Regulation

laying down ecodesign requirements for mobile phones, cordless phones and tablets pursuant to Directive 2009/125/EC of the European Parliament and of the Council

ANNEX I

Definitions applicable to the Annexes

(1) ‘base station’ means a device that acts as the bridge between the network connection (telephone or Internet connection) and one or several cordless phone handsets, but does not provide router functionality for any other devices. A base station typically provides also the build-in charging cradle to recharge the handset;

(2) ‘charging cradle’ means a device that acts as the charging unit for a single cordless phone handset, but does not provide network connection functionality;

(3) 'networked standby' means networked standby within the meaning of Article 2(11) of Commission Regulation (EC) No 1275/2008[1];

(4) ‘P_n’ is the power consumption in networked standby mode, expressed in Watt and rounded to two decimal places;

(5) ‘spare part’ means a separate part that can replace a part with the same or similar function in a mobile phone, cordless phone or slate tablet. A part shall be considered necessary for use if the mobile phone, cordless phone or slate tablet cannot function as intended without that part. The functionality of the mobile phone, cordless phone or slate tablet is restored or upgraded when the part is replaced by a spare part;

(6) ‘professional repairer’ means an operator or undertaking which performs repair and professional maintenance of mobile phones, cordless phones or slate tablets, either as a service or with a view to the subsequent resale of the repaired device;

(7) ‘fastener’ means a hardware device that mechanically or magnetically connects or fixes two or more objects, parts or pieces. Connectors with both mechanical and electrical function shall be considered as fasteners;

(8) ‘required fastener’ means any fastener to be disassembled according to the repair instructions provided by manufacturers, importers or authorised representatives to get access to a part which is meant to be replaced by a spare part;

(9) ‘reusable fastener’ means a fastener that can be completely reused in the reassembly for the same purpose, or, in case the fastener cannot be reused, a fastener that is supplied at no additional cost with the spare part which it is intended to connect or fix. Adhesives shall be considered reusable fasteners if they are supplied with the spare part in a quantity that is sufficient for the reassembly, at no additional cost; screws and other connectors such as, but not limited to, snap-fits and clips shall be classified as reusable fasteners, unless they cause damage either to the product or to the fastener itself during the disassembly or reassembly process in a way that makes their reuse impossible;

(10) ‘removable fastener’ means a fastener that is not reusable, but whose removal does not entail a high risk of damaging the product or of leaving residue which precludes reassembly. Adhesives that are not reusable fasteners shall be considered removable fasteners unless their removal process, using commercially available tools with a

[1] Commission Regulation (EC) No 1275/2008 of 17 December 2008 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment (OJ L 339, 18.12.2008, p. 45)

reasonable level of effort, does not allow the full removal of the residues and entails a high risk of permanently precluding the reassembly of the product;

(11) ‘battery’ means any part consisting of one or several battery cells, including, as relevant to the product model, an electronic circuitry with battery-related sensors for battery management, housing(s), battery tray, brackets, shieldings, thermal interface materials, and electric connections to other assemblies of the device;

(12) ‘back cover’ or ‘back cover assembly’ means the main backside housing, including, as relevant to the product model, the frame, a backside cover layer attached to the main back cover body, rear-facing camera lens covers, printed or plated antennas, brackets, shieldings, and thermal interface materials;

(13) ‘auxiliary microphone’ means a microphone that is not essential for user’s voice signals, but provides secondary functions, such as, but not limited to, ambient noise reduction;

(14) ‘front-facing camera assembly’ means any part consisting of one or several cameras oriented towards the user of the device, including , as relevant to the product model:

(a) camera components and related sensors;

(b) flashlight components;

(c) optical components;

(d) mechanical components needed for functions such as image stabilisation and focus;

(e) module housing(s);

(f) brackets;

(g) shieldings;

(h) signal lights;

(i) auxiliary microphones;

(j) electric connections to other assemblies of the device.

(15) ‘rear-facing camera assembly’ means any part consisting of one or several cameras oriented to the rear side of the device, including , as relevant to the product model:

(a) camera components and related sensors;

(b) flashlight components;

(c) optical components;

(d) mechanical components needed for functions such as image stabilisation and focus;

(e) module housing(s);

(f) brackets;

(g) shieldings;

(h) auxiliary microphones;

(i) electric connections to other assemblies of the device.

(16) ‘external audio connector’ means a connector for audio signals to connect to a headset or external loudspeakers or similar audio device, including, as relevant to the

product model, brackets, gaskets and electric connections to other assemblies of the device;

(17) ‘external charging port’ means a port for wired battery charging, possibly also used for data exchange and reverse charging of another device, which is composed of a USB-C receptacle and a related housing and including, as relevant to the product model, brackets, gaskets and electric connections to other assemblies of the device;

(18) ‘mechanical button’ means a mechanical switch or an assembly of mechanical switches that can be depressed or a slider button which can be mechanically moved to switch on or off functions such as volume, triggering the camera, or switching on or off the device and including, as relevant to the product model, brackets, gaskets and electric connections to other assemblies of the device;

(19) ‘main microphone(s)’ means the microphone(s) intended for the user’s voice signals including, as relevant to the product model, gaskets and electric connections to other assemblies of the device;

(20) ‘speaker’ means any loudspeaker and any mechanical part to generate sound, including, as relevant to the product model, module housing(s), gaskets and electric connections to other assemblies of the device;

(21) ‘hinge assembly’ means a mechanism by means of a part or an assembly that allows a device to be folded while preserving its operational integrity including, where relevant, module housings;

(22) ‘mechanical display folding mechanism’ means a mechanism by means of a part or an assembly that allows a device, including its display, to be folded while preserving its operational integrity;

(23) ‘charger’ means a compatible external power supply unit and a charging cable to connect to the charging port and to charge the battery of the mobile phone, cordless phone or slate tablet;

(24) ‘SIM tray and memory card tray’ means a movable tray for a removable SIM card or memory card;

(25) ‘display assembly’ means the assembly of display unit and where relevant front panel digitiser unit, including, as relevant to the product module:

(a) backplate;

(b) shielding;

(c) display frame;

(d) backlight units;

(e) electronics circuitry including:

(i) display driver but excluding the main graphics processing unit functionality;

(ii) row and column controllers;

(iii) touch signal circuitry;

(iv) electric connections to other assemblies of the device.

(26) ‘protective foil for foldable display’ means a protective layer designed to be permanently attached to the screen of a foldable device to enhance the reliability and to reduce mechanical wear of the screen surface;

(27) ‘free access website’ means a website that can be accessed without having to pay or to provide personal information, including an email address or phone number;

(28) ‘equivalent model of a mobile phone, cordless phone or slate tablet’ means a model of a mobile phone, cordless phone or slate tablet placed on the market with the same technical and performance characteristics as regards generic and specific ecodesign requirements as another model of a mobile phone, cordless phone or slate tablet placed on the market under a different commercial code number by the same manufacturer;

(29) ‘failure analysis’ means a process of collecting and analysing data to identify the part which causes a malfunction;

(30) ‘separate protective cover’ means a protective cover which might be shipped with a mobile phone, cordless phone or slate tablet, but does not serve as a required part of the housing and is not considered an integral part of the product;

(31) ‘encryption’ means a (reversible) transformation of data by a cryptographic algorithm to produce ciphertext, namely to hide the information content of the data;

(32) ‘key’ means a sequence of symbols that controls the operation of a cryptographic transformation (e.g., encipherment, decipherment);

(33) ‘disassembly’ means a process whereby a product is taken apart in such a way that it could subsequently be reassembled and made operational;

(34) ‘operating system’ means software that controls the execution of programs and that may provide services such as resource allocation, scheduling, input-output control, and data management; it includes any pre-installed software applications which the user cannot uninstall;

(35) ‘security update’ means an operating system update, including security patches, if relevant for a given device, whose main purpose is to provide enhanced security for the device;

(36) ‘functionality update’ means an operating system update whose main purpose is to implement new functionalities;

(37) ‘rated capacity’ means the capacity value of a battery determined under specified conditions, which is the quantity of electricity expressed in ampere-hours (Ah) which a battery can deliver during a 5-hour-period and declared by the manufacturer;

(38) ‘battery endurance per cycle’ means the time a mobile phone or slate tablet can operate with an initially fully charged battery, running a defined test scenario, before the device shuts off automatically due to a drained battery, expressed in hours (h);

(39) ‘battery endurance in cycles’ means the number of charge/discharge cycles a battery can withstand until its usable electrical capacity has reached 80 % of its rated capacity, expressed in cycles (n);

(40) ‘state of charge’ means the available capacity in a battery expressed as a percentage of rated capacity;

(41) ‘state of health’ means a measure of the general condition of a rechargeable battery and its ability to deliver the specified performance compared with its initial condition;

(42) ‘battery management system’ means an electronic device that controls or manages the electric and thermal functions of the battery, that manages and stores the data on the parameters for recording the date of manufacturing of the battery, date of first use of the battery, number of charge/discharge cycles, and the state of health of batteries, and that communicates with the product in which the battery is incorporated;

(43) ‘remaining capacity’ of a battery means the capacity with the battery keeping normal peak performance and measured relative to when the product was new;

(44) ‘smart charging’ means an adaptive battery charging profile based on algorithms learning from user behaviour to optimise the charging profile in terms of reducing battery lifetime limiting effects;

(45) 'R_{cyc}' means the recyclability rate, expressed in %;

(46) ‘ingress protection rating’ means the extent of protection provided by an enclosure against ingress of solid foreign objects and/or against ingress of water, verified by standardised test methods and expressed with a coding system to indicate the degree of such protection;

(47) ‘date of placement on the market’ means the date of placement on the market of the first unit of a product model;

(48) ‘date of end of placement on the market’ means the date of placement on the market of the last unit of a product model;

(49) ‘secure deletion of the encryption key’ means the effective erasure of the encryption key used to encrypt and decrypt data, overwriting the key completely in such a way that access to the original key, or parts of it, becomes infeasible;

(50) ‘proprietary tool’ means a tool that is not available for purchase by the general public or for which any applicable patents are not available to licence under fair, reasonable and non-discriminatory terms;

(51) 'basic tools' means a screwdriver with slotted heads, a cross recess screwdriver, a hexalobular recess screwdriver, a hexagon socket key, a combination wrench, combination pliers, combination pliers for wire stripping and terminal crimping, half round nose pliers, diagonal cutters, multigrip pliers, locking pliers, a prying lever, tweezers, and a magnifying glass;

(52) ‘commercially available tool’ means a tool that is available for purchase by the general public and is neither basic tools nor a proprietary tool;

(53) ‘production-equivalent environment’ means an environment that is comparable with the environment in which a product was manufactured;

(54) ‘use environment’ means an environment where the product is in use;

(55) ‘workshop environment’ means an environment that is neither a use environment nor a production-equivalent environment;

(56) ‘generalist’ means a person with general knowledge of basic repair techniques and safety precautions;

(57) ‘layman’ means a person without any specific repair experience or related qualifications;

(58) 'declared values' means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in accordance with Article 4, for the verification of compliance by the Member State authorities.

ANNEX II
Ecodesign requirements

A. Mobile phones other than smartphones

1. RESOURCE EFFICIENCY REQUIREMENTS

1.1. Design for repair and reuse

(1) Availability of spare parts:

(a) From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall make available to professional repairers at least the following spare parts, including required fasteners, if not reusable, for a minimum period from one month after the date of placement on the market until 5 years after the date of end of placement on the market, when present:

(i) battery;

(ii) back cover or back cover assembly;

(iii) display assembly;

(iv) front-facing camera assembly;

(v) rear-facing camera assembly;

(vi) external audio connector(s);

(vii) external charging port(s);

(viii) mechanical button(s);

(ix) main microphone(s);

(x) speaker(s);

(xi) hinge assembly;

(xii) mechanical display folding mechanism;

(xiii) protective foil for foldable displays;

(xiv) charger, unless the device complies with [OP please add reference to common charger provision, Article 3(4) in the proposal] of Directive 2014/53/EU of the European Parliament and of the Council[2];

(xv) SIM tray and memory card tray, if there is an external slot for a SIM tray or memory card tray.

(b) From [*12 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall make available to professional repairers and end-users at least protective foils for foldable displays, for a minimum period from one month after the date of placement on the market until 5 years after the date of end of placement on the market.

[2] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC (OJ L 153, 22.5.2014, p. 62).

(c) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall:

(i) make available to end-users at least the following spare parts, for a minimum period from 1 month after the date of placement on the market until 5 years after the date of end of placement on the market:

– battery;

– back cover or back cover assembly, if to be fully removed for replacement of the battery.

(ii) or, as an alternative to point (i), ensure that:

– the battery endurance in cycles achieves a minimum of 500 full charge cycles, and after 500 full charge cycles the battery must, in addition, have, in a fully charged state, a remaining capacity of at least 83 % of the rated capacity;

– the battery endurance in cycles achieves a minimum of 1000 full charge cycles, and after 1000 full charge cycles the battery must, in addition, have, in a fully charged state, a remaining capacity of at least 80 % of the rated capacity;

– the device is at least dust tight and protected against immersion in water up to 1 meter depth for a minimum of 30 minutes.

(d) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall make available to end-users at least the following spare parts, for a minimum period from one month after the date of placement on the market until 5 years after the date of end of placement on the market:

(i) display assembly;

(ii) charger, unless the device complies with [OP please add reference to common charger provision, Article 3(4) in the proposa)] of Directive 2014/53/EU;

(iii) SIM and memory card tray, if there is an external slot for a SIM or memory card tray.

(e) From *[12 months after the entry into force of this Regulation]*, spare parts concerned by points (a) and (b) shall not be assemblies comprising more than one of the listed spare part types, except for:

(i) microphones which might be part of a loudspeaker or external charging port assembly;

(ii) external audio connector(s) and external charging port(s) which might be combined as the same port;

(iii) hinge assembly which might be part of a mechanical display folding mechanism.

(f) From *[12 months after the entry into force of this Regulation]*, the list of spare parts concerned by points (a) and (b) and the procedure for ordering them shall be publicly available on the free access website of the manufacturer, importer or authorised representative, from one month after the date of placement on the market and until the end of the period of availability of those spare parts.

(g) From [*12 months after the entry into force of this Regulation*], the repair instructions for parts covered by point (b), when applicable, shall be publicly available on the free access website of the manufacturer, importer or authorised representative, from the date of placement on the market and until 7 years after the date of end of placement on the market.

(h) From [*OP: please insert the date = 18 months after the entry into force of this Regulation*], the repair instructions for parts concerned by point (c), when applicable, and point (d) shall be publicly available on the free access website of the manufacturer, importer or authorised representative, from the date of placement on the market and until 7 years after the date of end of placement on the market.

(2) Access to repair and maintenance information

From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall, from one month after the date of placement on the market until 7 years after the date of end of placement on the market, provide access to the repair and maintenance information to professional repairers for parts covered by points 1(a) and (b) in the following conditions, unless that information is made publicly available on the free access website referred to in points 1(g) and (h):

(a) The manufacturer's, importer's or authorised representative's website shall indicate the process for professional repairers to register for access to information; to accept such a request, the manufacturers, importers or authorised representatives may require the professional repairer to demonstrate that:

(i) the professional repairer has the technical competence to repair mobile phones other than smartphones and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point;

(ii) the professional repairer is covered by insurance covering liabilities resulting from its activity regardless of whether this is required by the Member State.

(b) Manufacturers, importers or authorised representatives shall accept or refuse the registration within 5 working days from the date of request. In the case of refusal, a clear justification will be provided to the requestee outlining the reasons behind such decision, which shall be revoked, if the same professional repairer requests to be registered with updated information, which complies with the conditions for being granted access.

(c) Manufacturers, importers or authorised representatives may charge reasonable and proportionate fees for access to the repair and maintenance information or for receiving regular updates of such information. The registration as such shall be provided for free. A fee shall be considered reasonable in particular if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information.

(d) Once registered, a professional repairer shall have access, within 1 working day after requesting it, to the requested repair and maintenance information.

The information may be provided for an equivalent model or model of the same family, if relevant.

(e) The repair and maintenance information referred to in point (a) shall include:

(i) the unequivocal product identification;

(ii) a disassembly map or exploded view;

(iii) wiring and connection diagrams, as required for failure analysis;

(iv) electronic board diagrams, to the level of detail needed to replace parts covered by point 1(a);

(v) a list of necessary repair and test equipment;

(vi) technical manual of instructions for repair;

(vii) diagnostic fault and error information (including manufacturer-specific codes, where applicable);

(viii) component and diagnosis information (such as minimum and maximum theoretical values for measurements, except for personal identifiable information, except if relevant for a repair operation concerned by point 1(a), (c), and (d));

(ix) instructions for software and firmware (including reset software);

(x) information on how to access data records of reported failure incidents stored on the device (where applicable and except for personal identifiable information such as related to user behaviour and location information);

(xi) the procedure for user authorisation of parts replacement when required for a repair, and software tools, firmware and similar auxiliary means required for full functionality of the spare part and device after repair, such as remote or onsite authorisation of serial numbers;

(xii) information on how to access professional repair (internet webpages, addresses, contact details).

(f) Without prejudice to intellectual property rights, third parties shall be allowed to use and publish unaltered repair and maintenance information initially published by the manufacturer, importer or authorised representative and covered by point (e) once the manufacturer, importer or authorised representative terminates access to that information after the end of the period of access to repair and maintenance information.

(g) For access to information and tools referred to in point (e)(xi), the manufacturer, importer or authorised representative might require the owner of the device to notify the manufacturer, importer or authorised representative of the intended repair case. For parts referred to in point (e)(xi), that are relevant for user identification or data security, manufacturers, importers or authorised representatives may provide remote authorisation of serial numbers directly to the end-user.

(h) In case access to personal identifiable information is required to perform a repair operation covered by point 1(a), (c), and (d), the user must be informed and must authorise access to that information.

(3) Maximum delivery time of spare parts

From [*12 months after the entry into force of this Regulation*]:

(a) During the period referred to in point 1(a) and (b), manufacturers, importers or authorised representatives shall ensure the delivery of the spare parts within 5 working days after having received the order.

(b) In the case of spare parts covered by point 1(a), the availability of spare parts may be limited to professional repairers registered in accordance with point 2 (a) and (b).

(4) Maximum price of spare parts

During the period referred to in point 1(a) and (b), manufacturers, importers or authorised representatives shall indicate an expected maximum pre-tax price at least in euros for spare parts listed in points 1(a) and (b), including the pre-tax price of fasteners and tools, if supplied with the spare part, on the free access website of the manufacturer, importer or authorised representative. Where spare parts listed in point 1(a) and (b) are made available to end-users, the expected maximum pre-tax price refers to the price for professional repairers and end-users.

(5) Disassembly requirements

Manufacturers, importers or authorised representatives shall meet the following disassembly requirements:

(a) From [*12 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall ensure, that the process for replacement of parts referred to in point 1(a) meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible in at least one of the following ways:

– with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

– with commercially available tools.

(iii) the process for replacement shall, as a minimum, be able to be carried out in a workshop environment;

(iv) the process for replacement shall, as a minimum, be able to be carried out by a generalist.

(b) From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure, that the process for replacement of parts referred to in point 1(b) meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

(iii) the process for replacement shall be able to be carried out in a use environment;

(iv) the process for replacement shall be able to be carried out by a layman.

(c) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure that the process for battery replacement:

(i) meets the following criteria:

- fasteners shall be reusable;
- the process for replacement shall be feasible with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;
- the process for replacement shall be able to be carried out in a use environment;
- the process for replacement shall be able to be carried out by a layman.

(ii) or, as an alternative to point (i), ensure that

- the process for battery replacement meets the criteria set out in (a);
- the battery endurance in cycles achieves a minimum of 500 full charge cycles, and after 500 full charge cycles the battery must, in addition, have in a fully charged state, a remaining capacity of at least 83 % of the rated capacity;
- the battery endurance in cycles achieves a minimum of 1000 full charge cycles, and after 1000 full charge cycles the battery must, in addition, have in a fully charged state, a remaining capacity of at least 80 % of the rated capacity, and
- the device is at least dust tight and protected against immersion in water up to one meter depth for a minimum of 30 minutes.

(d) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure that the process for display unit replacement meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible in at least one of the following ways:

- with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;
- with commercially available tools.

(iii) the process for replacement shall, as a minimum, be able to be carried out in a workshop environment;

(iv) the process for replacement shall, as a minimum, be able to be carried out by a generalist.

(6) Preparation for reuse

From *[12 months after the entry into force of this Regulation]*, manufacturers,importers or authorised representatives shall ensure, that devices include a software function that resets the

device to its factory settings and erases securely by default address book, text messages and call history.

1.2. Design for reliability

From [*12 months after the entry into force of this Regulation*]:

(1) Resistance to accidental drops: Manufacturers, importers or authorised representatives shall ensure that the devices pass 100 falls without any protective foil or separate protective cover, except for foldable mobile phones designed to be used with a permanently attached protective foil on the foldable display, which shall be tested with the permanently attached protective foil, without loss of functionality, following the test procedure set out in Annex IIIa; for devices with movable parts, this requirement applies to both the state in which the device is shipped and the fully extended state.

(2) Scratch resistance: Manufacturers, importers or authorised representatives shall ensure that the screen of the device passes the hardness level 4 on the Mohs hardness scale, except for foldable smartphones designed to be used with a permanently attached protective foil on the foldable display.

(3) Protection from dust and water: Manufacturers, importers or authorised representatives shall ensure that the devices are protected against the ingress of solid foreign objects of size bigger than 1millimeter and splashing of water.

(4) Battery endurance in cycles: Manufacturers, importers or authorised representatives shall ensure that the devices achieve at least 500 cycles at 80 % remaining capacity, to be tested under charging conditions where the charging rate is limited by the battery management system and not by the power delivery capabilities of the power supply.

(5) Battery management:

(a) Manufacturers, importers or authorised representatives shall include an optional charging feature selectable by the user which terminates the charging process automatically, when the battery is charged to 80 % of its full capacity;

(b) Manufacturers, importers or authorised representatives shall provide a power management feature which by default ensures that once the battery is fully charged there is no further charging power supplied to the battery unless the charge level drops below 95 % of its maximum charge capacity; users shall have the possibility to disable this feature.

(6) Operating system updates:

(a) where manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with Union legislation, security updates or functionality updates to the operating system installed on a product model, they shall ensure that such updates are available at no cost at least until the date of end of placement on the market;

(b) where, after the date of end of placement on the market of a product model, manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with

Union legislation, security updates to the operating system installed on that product model at the moment of end of placement on the market, they shall ensure that such updates are available at no cost for at least 5 years after the date of end of placement on the market;

(c) where, after the date of end of placement on the market of a product model, manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with Union legislation, functionality updates to the operating system installed on that product model at the moment of end of placement on the market, they shall ensure that such updates are available at no cost for at least 3 years after the date of end of placement on the market;

(d) security updates mentioned under points (a) and (b) need to be available to the user at the latest 2 months after the public release of a security patch, or the source code of an update of the underlying operating system or, if the source code is not publicly released, after an update of the same operating system is released by the operating system provider or on any other product of the same brand;

(e) functionality updates mentioned under points (a) and (c) need to be available to the user at the latest 4 months after the public release of the source code of an update of the underlying operating system or, if the source code is not publicly released, after an update of the same operating system is released by the operating system provider or on any other product of the same brand;

(f) an operating system update may combine a security and a functionality update.

1.3. Marking of plastic components

From [*12 months after the entry into force of this Regulation*], plastic components heavier than 50 g shall be marked by specifying the type of polymer with the appropriate standard symbols or abbreviated terms set between the punctuation marks ‘>’ and ‘<’ as specified in available standards. The marking shall be legible.

Plastic components shall be exempt from marking requirements provided the following conditions are fulfilled:

(i) the marking is not possible because of the shape or size;

(ii) the marking would impact on the performance or functionality of the plastic component;

(iii) marking is technically not possible because of the molding method.

For the following plastic components no marking shall be required:

(i) packaging, tape, labels and stretch wraps;

(ii) wiring, cables and connectors, rubber parts and any other component where not enough appropriate surface area is available for the marking to be of a legible size;

(iii) PCB assemblies, PMMA boards, optical components, electrostatic discharge components, electromagnetic interference components, speakers;

(iv) transparent parts where the marking would obstruct the function of the part in question.

1.4. Recyclability requirements

From [*12 months after the entry into force of this Regulation*]:

(1) Manufacturers, importers or their authorised representatives shall, without prejudice to Article 15(1) of Directive 2012/19/EU of the European Parliament and of the Council[3] make available, on a free access website, the dismantling information needed to access any of the products components referred to in Annex VII, point 1, of Directive 2012/19/EU.

(2) The information referred to in point (1) shall include the sequence of dismantling steps, tools or technologies needed to access the targeted components.

(3) The information referred to in point (1) shall be available until at least 15 years after the placing on the market of the last unit of a product model.

2. INFORMATION REQUIREMENTS

From [*12 months after the entry into force of this Regulation*]:

(1) Manufacturers, importers or authorised representatives shall provide in the technical documentation and make publicly available on free-access websites the following information:

(a) compatibility with removable memory cards, if any;

(b) indicative weight range of the following critical raw materials and environmentally relevant materials:

(i) cobalt in the battery (weight range: less than 2 g, between 2 g and 5 g, above 5 g);

(ii) tantalum in capacitors (weight range: less than 0,05 g, between 0,05 g and 0,2 g, above 0,2 g);

(iii) neodymium in loud speakers, vibration motors, and other magnets (weight range: less than 0,05 g, between 0,05 g and 0,2 g, above 0,2 g);

(iv) gold in all components (weight range: less than 0,02 g, between 0,02 g and 0,1 g, above 0,1 g).

(c) recyclability rate Rcyc;

(d) the percentage of recycled content for the product or a part thereof, where available;

(e) ingress protection rating;

(f) minimum battery endurance in cycles in number of cycles.

[3] Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE)(OJ L 197, 24.7.2012, p. 38)

(2) Manufacturers, importers or authorised representatives shall provide user instructions in the form of a user manual on a free access website of the manufacturer, importer or authorised representative. Those instructions shall include instructions for battery maintenance, including the following:

(i) impacts on battery lifetime related to exposing the device to elevated temperatures, state of charge, fast charging and other known adverse effects on battery lifetime;

(ii) effects of switching off radio connections, such as WiFi, Bluetooth, on power consumption;

(iii) information about whether the device supports other features which extend battery lifetime, such as smart charging, and about how these features are activated or under which conditions they work best.

(3) Manufacturers, importers or authorised representatives shall provide user instructions in the form of a user manual on a free access website of the manufacturer, importer or authorised representative, and on the sales packaging of the device Where the package does not include a charger, those instructions shall include the following information: "For environmental reasons this package does not include a charger. This device can be powered with most USB power adapters and a cable with USB Type-C plug."

B. Smartphones

1. RESOURCE EFFICIENCY REQUIREMENTS

1.1. Design for repair and reuse

(1) Availability of spare parts:

(a) From [*12 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall make available to professional repairers at least the following spare parts, including required fasteners, if not reusable, for a minimum period from one month after the date of placement on the market until 5 years after the date of end of placement on the market, when present:

(i) battery;

(ii) back cover or back cover assembly;

(iii) display assembly;

(iv) front-facing camera assembly;

(v) rear-facing camera assembly;

(vi) external audio connector(s);

(vii) external charging port(s);

(viii) mechanical button(s);

(ix) main microphone(s);

(x) speaker(s);

(xi) hinge assembly;

(xii) mechanical display folding mechanism;

(xiii) protective foil for foldable displays;

(xiv) charger, unless the device complies with [OP please add reference to common charger provision, Article 3(4) in the proposal] of Directive 2014/53/EU;

(xv) SIM tray and memory card tray, if there is an external slot for a SIM tray or memory card tray.

(b) From [*12 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall make available to professional repairers and end-users at least protective foil for foldable displays, for a minimum period from one month after the date of placement on the market until 5 years after the date of end of placement on the market.

(c) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall:

(i) make available to end-users at least the following spare parts, for a minimum period from 1 month after the date of placement on the market until 5 years after the date of end of placement on the market:

(a) battery;

(b) back cover or back cover assembly, if to be fully removed for replacement of the battery.

(ii) or, as an alternative to point (i), ensure that:

(a) the battery endurance in cycles achieves a minimum of 500 full charge cycles, and after 500 full charge cycles the battery must, in addition, have, in a fully charged state, a remaining capacity of at least 83 % of the rated capacity;

(b) the battery endurance in cycles achieves a minimum of 1000 full charge cycles, and after 1000 full charge cycles the battery must, in addition, have, in a fully charged state, a remaining capacity of at least 80 % of the rated capacity;

(c) the device is at least dust tight and protected against immersion in water up to 1 meter depth for a minimum of 30 minutes.

(d) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall make available to end-users at least the following spare parts, for a minimum period from one month after the date of placement on the market until 5 years after the date of end of placement on the market:

(i) display assembly;

(ii) charger, unless the device complies with [OP please add reference to common charger provision, Article 3(4) in the proposal] of Directive 2014/53/EU;

(iii) SIM tray and memory card tray , if there is an external slot for a SIM tray or memory card tray.

(e) From [*12 months after the entry into force of this Regulation*], spare parts concerned by points (a) and (b) shall not be assemblies comprising more than one of the listed spare part types, except for:

(i) microphones which might be part of a loudspeaker or external charging port assembly;

(ii) external audio connector(s) and external charging port(s) which might be combined as the same port;

(iii) hinge assembly which might be part of a mechanical display folding mechanism.

(f) From *[12 months after the entry into force of this Regulation]*, the list of spare parts concerned by points (a) and (b) and the procedure for ordering them shall be publicly available on the free access website of the manufacturer, importer or authorised representative, from one month after the date of placement on the market on the market and until the end of the period of availability of these spare parts;

(g) From *[12 months after the entry into force of this Regulation]*, the repair instructions for parts covered by point (b), when applicable, shall be publicly available on the free access website of the manufacturer, importer or authorised representative, from the date of placement on the market and until 7 years after the date of end of placement on the market;

(h) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, the repair instructions for parts concerned by points (c), when applicable, and (d) shall be publicly available at the free access website of the manufacturer, importer or authorised representative, from the date of placement on the market and until 7 years after the date of end of placement on the market.

(2) Access to repair and maintenance information

From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall, from one month after the date of placement on the market until 7 years after the date of end of placement on the market, provide access to repair and maintenance information to professional repairers for parts convered by points 1(a) and (b) in the following conditions, unless that information is made publicly available on the free access website referred to in point 1(g) and (h):

(a) The manufacturer's, importer's or authorised representative's website shall indicate the process for professional repairers to register for access to information; to accept such a request, the manufacturers, importers or authorised representatives may require the professional repairer to demonstrate that:

(i) the professional repairer has the technical competence to repair smartphones and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point;

(ii) the professional repairer is covered by insurance covering liabilities resulting from its activity regardless of whether this is required by the Member State.

(b) Manufacturers, importers or authorised representatives shall accept or refuse the registration within 5 working days from the date of request. In the case of refusal, a clear justification will be provided to the requestee outlining the reasons behind such decision, which shall be revoked, if the same professional repairer requests to be registered with updated information, which complies with the conditions for being granted access;

(c) Manufacturers, importers or authorised representatives may charge reasonable and proportionate fees for access to the repair and maintenance information or for receiving regular updates of such information. The registration as such shall be provided for free. A fee shall be considered reasonable in particular if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information;

(d) Once registered, a professional repairer shall have access, within 1 working day after requesting it, to the requested repair and maintenance information. The information may be provided for an equivalent model or model of the same family, if relevant;

(e) The repair and maintenance information referred to in point (a) shall include:

(i) the unequivocal product identification;

(ii) a disassembly map or exploded view;

(iii) wiring and connection diagrams, as required for failure analysis;

(iv) electronic board diagrams, to the level of detail needed to replace parts coveredd by point 1(a);

(v) a list of necessary repair and test equipment;

(vi) technical manual of instructions for repair;

(vii) diagnostic fault and error information (including manufacturer-specific codes, where applicable);

(viii) component and diagnosis information (such as minimum and maximum theoretical values for measurements, except for personal identifiable information, except if relevant for a repair operation concerned by point 1(a), (c), and (d));

(ix) instructions for software and firmware (including reset software);

(x) information on how to access data records of reported failure incidents stored on the device (where applicable and except for personal identifiable information such as related to user behavior and location information);

(xi) the procedure for user authorisation of parts replacement when required for a repair, and software tools, firmware and similar auxiliary means required for full functionality of the spare part and device after repair, such as remote or onsite authorisation of serial numbers;

(xii) information on how to access professional repair (internet webpages, addresses, contact details).

(f) Without prejudice to intellectual property rights, third parties shall be allowed to use and publish unaltered repair and maintenance information initially published by the manufacturer, importer or authorised representative and covered by point (e) once the manufacturer, importer or authorised representative terminates access to that information after the end of the period of access to repair and maintenance information;

(g) for access to information and tools referred to in point (e)(xi), the manufacturer, importer or authorised representative might require the owner of the device to notify the manufacturer, importer or authorised representative of the intended repair case. For parts referred to in point (e)(xi), that are relevant for user identification or data security, manufacturers, importers or authorised representatives may provide remote authorisation of serial numbers directly to the end-user;

(h) in case access to personal identifiable information is required to perform a repair operation covered by point 1(a), (c), (d), the user must be informed and must authorise access to that information.

(3) Maximum delivery time of spare parts

From *[12 months after the entry into force of this Regulation]*:

(a) During the period referred to in points 1(a) and (b), manufacturers, importers or authorised representatives shall ensure the delivery of the spare parts within 5 working days after having received the order.

(b) In the case of spare parts concerned by point 1(a) the availability of spare parts may be limited to professional repairers registered in accordance with point 2 (a) and (b).

(4) Maximum price of spare parts

During the period referred to in point 1(a) and (b) the manufacturers, importers or authorised representatives shall indicate an expected maximum pre-tax price at least in euro for spare parts listed in point 1(a) and (b), including the pre-tax price of fasteners and tools, if supplied with the spare part, on the free access website of the manufacturer, importer or authorised representative. Where spare parts listed in point 1(a) and (b) are made available to end-users, the expected maximum pre-tax price refers to the price for professional repairers and end-users.

(5) Disassembly requirements

Manufacturers, importers or authorised representatives shall meet the following disassembly requirements:

(a) From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure, that the process for replacement of parts referred to in point 1(a) meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible in at least one of the following ways:

– with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

– with commercially available tools.

(iii) the process for replacement shall, as a minimum, be able to be carried out in a workshop environment;

(iv) the process for replacement shall, as a minimum, be able to be carried out by a generalist.

(b) From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure, that the process for replacement of parts referred to in point 1(b) meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

(iii) the process for replacement shall be able to be carried out in a use environment;

(iv) the process for replacement shall be able to be carried out by a layman.

(c) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure that the process for battery replacement:

(i) meets he following criteria:

– fasteners shall be reusable;

– the process for replacement shall be feasible with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

– the process for replacement shall be able to be carried out in a use environment;

– the process for replacement shall be able to be carried out by a layman.

(ii) or, as an alternative to point (i), ensure that

– the process for battery replacement meets the criteria set out in (a);

– the battery endurance in cycles achieves a minimum of 500 full charge cycles, and after 500 full charge cycles the battery must, in addition, have in a fully charged state, a remaining capacity of at least 83 % of the rated capacity;

– the battery endurance in cycles achieves a minimum of 1000 full charge cycles, and after 1000 full charge cycles the battery must, in addition, have in a fully charged state, a remaining capacity of at least 80 % of the rated capacity;

– the device is at least dust tight and protected against immersion in water up to one meter depth for a minimum of 30 minutes.

(d) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall

ensure that the process for display assembly replacement meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible in at least one of the following ways:

- with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools, or
- with commercially available tools.

(iii) the process for replacement shall, as a minimum, be able to be carried out in a workshop environment,

(iv) the process for replacement shall, as a minimum, be able to be carried out by a generalist.

(6) Requirements for preparation for reuse

From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure that devices:

(a) encrypt user data by default using a random encryption key;

(b) include a software function, that resets the device to its factory settings and erases securely by default the encryption key and generates a new one;

(c) record the following data from the battery management system in the system settings or another location accessible for end-users:

(i) Date of manufacturing of the battery;

(ii) Date of first use of the battery;

(iii) Number of full charge/discharge cycles (reference: rated capacity);

(iv) Measured state of health (remaining full charge capacity relative to the rated capacity in %).

1.2. Design for reliability

From [*12 months after the entry into force of this Regulation*]:

(1) Resistance to accidental drops: Manufacturers, importers or authorised representatives shall ensure that the devices pass 100 falls without any protective foil or separate protective cover, except for foldable smartphones designed to be used with a permanently attached protective foil on the foldable display, which shall be tested with the permanently attached protective foil, without loss of functionality, following the test procedure set out in Annex IIIa; for devices with movable parts this requirement applies to both, the state in which the device is shipped and the fully extended state.

(2) Scratch resistance: Manufacturers, importers or authorised representatives shall ensure that the screen of the device passes the hardness level 4 on the Mohs hardness scale, except for foldable smartphones designed to be used with a permanently attached protective foil on the foldable display.

(3) Protection from dust and water: Manufacturers, importers or authorised representatives shall ensure that the devices are protected against the ingress of solid foreign objects of size bigger than 1millimeter and splashing of water.

(4) Battery endurance in cycles: Manufacturers, importers or authorised representatives shall ensure that the devices achieve at least 500 cycles at 80 % remaining capacity, to be tested under charging conditions where the charging rate is limited by the battery management system and not by the power delivery capabilities of the power supply.

(5) Battery management:

(a) Manufacturers, importers or authorised representatives shall include an optional charging feature selectable by the user which terminates the charging process automatically, when the battery is charged to 80 % of its full capacity;

(b) Manufacturers, importers or authorised representatives shall provide a power management feature which by default ensures that once the battery is fully charged there is no further charging power supplied to the battery unless the charge level drops below 95 % of its maximum charge capacity; users shall have the possibility to disable this feature.

(6) Operating system updates:

(a) where manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with Union legislation, security updates or functionality updates to the operating system installed on a product model, they shall ensure that such updates are available at no cost at least until the date of end of placement on the market;

(b) where, after the date of end of placement on the market of a product model, manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with Union legislation, security updates to the operating system installed on that product model at the moment of end of placement on the market, they shall ensure that such updates are available at no cost for at least 5 years after the date of end of placement on the market;

(c) where, after the date of end of placement on the market of a product model, manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with Union legislation, functionality updates to the operating system installed on that product model at the moment of end of placement on the market, they shall ensure that such updates are available at no cost for at least 3 years after the date of end of placement on the market;

(d) security updates mentioned under points (a) and (b) need to be available to the user at the latest 2 months after the public release of a security patch, or the source code of an update of the underlying operating system or, if the source code is not publicly released, after an update of the same operating system is released by the operating system provider or on any other product of the same brand;

(e) functionality updates mentioned under points (a) and (c) need to be available to the user at the latest 4 months after the public release of the source code of an update of the underlying operating system

or, if the source code is not publicly released, after an update of the same operating system is released by the operating system provider or on any other product of the same brand.

(f) an operating system update may combine a security and a functionality update.

(g) before an operating system update is released manufacturers, importers or authorised representatives shall perform appropriate quality testing and shall make publicly available on a website the specification of performance tests against which the update is tested. In case a released operating system software shows a negative impact on device performance under conditions corresponding to the specified performance tests, manufacturers, importers or authorised representatives shall modify the released operating system to ensure at least the same performance as before the update within a reasonable period of time, free of charge and without causing significant inconvenience to the consumer.

(h) after the end of placement on the market manufacturers, importers or authorised representatives shall ensure that the user has the option to restore the operating system version which was available for this model on the date of end of placement on the market, or, alternatively, any earlier one. Prior to the reinstallation of this operating system version the user shall be notified about potential security issues, the risk of data loss and the risk of incompatibility with software provided by third parties.

1.3. Marking of plastic components

From *[12 months after the entry into force of this Regulation]*, plastic components heavier than 50 g shall be marked by specifying the type of polymer with the appropriate standard symbols or abbreviated terms set between the punctuation marks '>' and '<' as specified in available standards. The marking shall be legible.

Plastic components shall be exempt from marking requirements provided the following conditions are fulfilled:

(i) the marking is not possible because of the shape or size;

(ii) the marking would impact on the performance or functionality of the plastic component;

(iii) marking is technically not possible because of the molding method.

For the following plastic components no marking shall be required:

(i) packaging, tape, labels and stretch wraps;

(ii) wiring, cables and connectors, rubber parts and any other component where not enough appropriate surface area is available for the marking to be of a legible size;

(iii) PCB assemblies, PMMA boards, optical components, electrostatic discharge components, electromagnetic interference components, speakers;

(iv) transparent parts where the marking would obstruct the function of the part in question.

1.4. Recyclability requirements

From [*12 months after the entry into force of this Regulation*]:

(1) Manufacturers, importers or their authorised representatives shall, without prejudice to Article 15(1)of Directive 2012/19/EU, make available, on a free-access website, the dismantling information needed to access any of the products components referred to in Annex VII, point 1, of Directive 2012/19/EU.

(2) The information referred to in point (1) shall include the sequence of dismantling steps, tools or technologies needed to access the targeted components.

(3) The information referred to in point (1) shall be available until at least 15 years after the placing on the market of the last unit of a product model.

2. INFORMATION REQUIREMENTS

From *[12 months after the entry into force of this Regulation]*:

(1) Manufacturers, importers or authorised representatives shall provide in the technical documentation and make publicly available on free-access websites the following information:

(a) compatibility with removable memory cards, if any;

(b) indicative weight range of the following critical raw materials and environmentally relevant materials:

(i) cobalt in the battery (weight range: less than 2 g, between 2 g and 10 g, above 10 g);

(ii) tantalum in capacitors (weight range: less than 0,01 g, between 0,01 g and 0,1 g, above 0,1 g);

(iii) neodymium in loud speakers, vibration motors, and other magnets (weight range: less than 0,05 g, between 0,05 g and 0,2 g, above 0,2 g), and

(iv) gold in all components (weight range: less than 0,02 g, between 0,02 g and 0,05 g, above 0,05 g).

(c) recyclability rate Rcyc;

(d) the percentage of recycled content for the product or a part thereof, where available;

(e) ingress protection rating;

(f) minimum battery endurance in cycles in number of cycles;

(g) in case of foldable devices, it shall be indicated that ‘This device did not undergo a scratch resistance test’.

(2) Manufacturers, importers or authorised representatives shall provide user instructions in the form of a user manual on a free access website of the manufacturer, importer or authorised representative, and shall include:

(a) how to access on the device information from the battery management system on:

(i) date of manufacturing of the battery;

(ii) date of first use of the battery;

(iii) number of full charge/discharge cycles (reference: rated capacity);

(iv) measured state of health (remaining full charge capacity relative to the rated capacity in %).

(b) instructions for battery maintenance, including the following:

(i) impacts on battery lifetime related to exposing the device to elevated temperatures, state of charge, fast charging and other known adverse effects on battery lifetime;

(ii) effects of switching off radio connections, such as WiFi, Bluetooth, on power consumption;

(iii) information about whether the device supports other features, which extend battery lifetime, such as smart charging and about how these features are activated or under which conditions they work best.

(c) instructions for restoring operating system versions referred to in part 1.2, point 6(h).

(3) Manufacturers, importers or authorised representatives shall ensure that:

(a) Information that data encryption is enabled by default is displayed to the user in the course of configuring a new device, including an explanation that this eases data erasure through factory reset.

(b) If wireless charging is selected, a message notifying the user that wireless charging will likely increase the energy use in the charging of the battery.

(4) Manufacturers, importers or authorised representatives shall provide user instructions in the form of a user manual on a free access website of the manufacturer, importer or authorised representative, and on the sales packaging of the device. Where the package does not include a charger, those instructions shall include the following information: "For environmental reasons this package does not include a charger. This device can be powered with most USB power adapters and a cable with USB Type-C plug."

C. Cordless phones

1. LOW POWER MODES

From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure that cordless phones meet the following requirements:

(1) the networked standby power consumption Pn of a base station shipped with a cordless phone shall not exceed 1 W, regardless of whether a handset is on the base station;

(2) the networked standby power consumption Pn of a charging cradle without base station functionality shipped with a cordless phone shall not exceed 0,6 W with the charged handset on the charging cradle and 0,3 W without the handset on the charging cradle;

(3) devices shall be configured in their factory settings to cut off the radio signals of the base station and handset (or handsets) in network standby mode. The base station shall switch off its radio signal in this operating mode regardless of the number of registered handsets. This shall also be ensured when a connection between a base station and a handset cannot be established, including if one or more handsets are outside the radio range of the base station, if registered handsets are switched off by the user or they are no longer ready for use due to a low battery. Resetting the device to the factory settings must restore the configuration described above.

2. RESOURCE EFFICIENCY REQUIREMENTS

2.1. Design for repair and reuse

From *[12 months after the entry into force of this Regulation]*:

(1) Availability of spare parts:

(a) Manufacturers, importers or authorised representatives shall make available to professional repairers at least the following spare parts, including required fasteners, if not reusable, for a minimum period from 1 month after the date of placement on the market until 5 years after the date of end of placement on the market, when present:

(i) display unit;

(ii) external audio connector(s);

(iii) external charging port(s);

(iv) mechanical button(s);

(v) main microphone(s);

(vi) speaker(s).

(b) Manufacturers, importers or authorised representatives shall make available to professional repairers and end-users at least the following spare parts, for a minimum period from 1 month after the date of placement on the market until seven years after the date of end of placement on the market:

(i) battery;

(ii) battery compartment cover;

(iii) charger unless the basestation is equipped with the USB Type-C receptacle, as described in the standard EN IEC 62680-1-3 ‘Universal serial bus interfaces for data and power - Part 1-3: Common components - USB Type-CTM Cable and Connector Specification’, which should remain accessible and operational at all times;

(iv) charging cradle.

(c) Spare parts concerned by point (a) and (b) shall not be assemblies comprising more than one of the listed spare part types;

(d) The list of spare parts concerned by point (a) and the procedure for ordering them shall be publicly available on the free access website of the manufacturer, importer or authorised representative, from 1 month after placing the first unit of a model on the market and until the end of the period of availability of these spare parts;

(e) The list of spare parts concerned by point (b) and the procedure for ordering them and the repair instructions shall be publicly available on the free access website of the manufacturer, importer or authorised representative, from the placing on the market of the first unit of a model and until 7 years after placing the last unit of the model on the market;

(f) The repair instructions for parts concerned by point (b), when applicable, shall be publicly available at no cost on the free access website of the manufacturer, importer or authorised representative, from the placing on the market of the first unit of a model and until 7 years after placing the last unit of the model on the market.

(2) Cordless phones shall be designed for the use of rechargeable batteries with standardised physical dimensions.

(3) Access to repair and maintenance information

From one month after the date of placement on the market until 7 years after the date of end of placement on the market, the manufacturer, importer or authorised representative shall provide access to the repair and maintenance information to professional repairers for parts covered by points 1(a) and (b) in the following conditions, unless that information is made publicly available on the free access website referred to in point 1(f):

(a) The manufacturer's, importer's or authorised representative's website shall indicate the process for professional repairers to register for access to information. To accept such a request, the manufacturers, importers or authorised representatives may require the professional repairer to demonstrate that:

(i) the professional repairer has the technical competence to repair cordless phones and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point;

(ii) the professional repairer is covered by insurance covering liabilities resulting from its activity regardless of whether this is required by the Member State.

(b) Manufacturers, importers or authorised representatives shall accept or refuse the registration within 5 working days from the date of request. In the case of refusal, a clear justification will be provided to the requestee outlining the reasons behind such decision, which shall be revoked, if the same professional repairer requests to be registered with updated information, which complies with the conditions for being granted access.

(c) Manufacturers, importers or authorised representatives may charge reasonable and proportionate fees for access to the repair and maintenance information or for receiving regular updates of such information. The registration as such shall be provided for free. A fee shall be considered reasonable in particular if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information.

(d) Once registered, a professional repairer shall have access, within one working day after requesting it, to the requested repair and maintenance information.

The information may be provided for an equivalent model or model of the same family, if relevant.

(e) The repair and maintenance information referred to in point (a) shall include:

(i) the unequivocal product identification;

(ii) a disassembly map or exploded view;

(iii) wiring and connection diagrams, as required for failure analysis;

(iv) electronic board diagrams, to the level of detail needed to replace parts covered by point 1(a);

(v) a list of necessary repair and test equipment;

(vi) technical manual of instructions for repair;

(vii) diagnostic fault and error information (including manufacturer-specific codes, where applicable);

(viii) component and diagnosis information (such as minimum and maximum theoretical values for measurements, and except for personal identifiable information, except if relevant for a repair operation concerned by point 1 (a));

(ix) instructions for software and firmware (including reset software);

(x) information on how to access data records of reported failure incidents stored on the device (where applicable and except for personal identifiable information such as related to user behavior, location information);

(xi) the procedure for user authorisation of parts replacement when required for a repair, and software tools, firmware and similar auxiliary means required for full functionality of the spare part and device after repair, such as remote or onsite authorisation of serial numbers;

(xii) information on how to access professional repair (internet webpages, addresses, contact details).

(f) Without prejudice to intellectual property rights, third parties shall be allowed to use and publish unaltered repair and maintenance information initially published by the manufacturer, importer or authorised representative and covered by point (e) once the manufacturer, importer or authorised representative terminates access to that information after the end of the period of access to repair and maintenance information.

(g) For access to information and tools referred to in point (e)(xi), the manufacturer, importer or authorised representative might require the owner of the device to notify the manufacturer, importer or authorised representative of the intended repair case. For parts referred to in point (e)(xi), that are relevant for user identification or data security, manufacturers, importers or authorised representatives may provide remote authorisation of serial numbers directly to the end-user.

(h) In case access to personal identifiable information is required to perform a repair operation covered by point 1(a), the user must be informed and must authorise access to that information.

(4) Maximum delivery time of spare parts

(a) During the period referred to in points 1(a) and (b) the manufacturers, importers or authorised representatives shall ensure the delivery of the spare parts within 5 working days after having received the order.

(b) In the case of spare parts covered by point 1(a) the availability of spare parts may be limited to professional repairers registered in accordance with point 3 (a) and (b).

(5) Maximum price of spare parts

During the period referred to in points 1(a) and (b) the manufacturers, importers or authorised representatives shall indicate an expected maximum pre-tax price for spare parts listed in points 1(a) and (b), including the pre-tax price of fasteners and tools, if supplied with the spare part, on the free access website of the manufacturer, importer or authorised representative. Where spare parts listed in point 1(a) and (b) are made available to end-users, the expected maximum pre-tax price refers to the price for professional repairers and end-users.

(6) Disassembly requirements

Manufacturers, importers or authorised representatives shall meet the following disassembly requirements:

(a) From [*12 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall ensure, that the process for replacement of parts referred to in point 1(a) meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible in at least one of the following ways:

– with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

– with commercially available tools.

(iii) the process for replacement shall, as a minimum, be able to be carried out in a workshop environment;

(iv) the process for replacement shall, as a minimum, be able to be carried out by a generalist.

(b) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure that the process for battery replacement meets the following criteria:

(i) fasteners shall be reusable;

(ii) the process for replacement shall be feasible with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

(iii) the process for replacement shall be able to be carried out in a use environment;

(iv) the process for replacement shall be able to be carried out by a layman.

(c) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall

ensure that the process for display unit replacement meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible in at least one of the following ways:

- with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;
- with commercially available tools.

(iii) the process for replacement shall, as a minimum, be able to be carried out in a workshop environment;

(iv) the process for replacement shall, as a minimum, be able to be carried out by a generalist.

(7) Preparation for reuse

From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure, that devices include a software function, that resets the device to its factory settings and erases securely by default address book, text messages and call history.

2.2. Marking of plastic components

Plastic components heavier than 50 g shall be marked by specifying the type of polymer with the appropriate standard symbols or abbreviated terms set between the punctuation marks '>' and '<' as specified in available standards. The marking shall be legible.

Plastic components shall be exempt from marking requirements provided the following conditions are fulfilled:

(i) the marking is not possible because of the shape or size;

(ii) the marking would impact on the performance or functionality of the plastic component;

(iii) marking is technically not possible because of the molding method.

For the following plastic components no marking shall be required:

(i) packaging, tape, labels and stretch wraps;

(ii) wiring, cables and connectors, rubber parts and any other component where not enough appropriate surface area is available for the marking to be of a legible size;

(iii) PCB assemblies, PMMA boards, optical components, electrostatic discharge components, electromagnetic interference components, speakers;

(iv) transparent parts where the marking would obstruct the function of the part in question.

2.3. Recyclability requirements

(1) Manufacturers, importers or their authorised representatives shall, without prejudice to Article 15(1) of Directive 2012/19/EU, make available, on a free-access website, the dismantling information needed to access any of the

products components referred to in Annex VII, point 1, of Directive 2012/19/EU.

(2) The information referred to in point (1) shall include the sequence of dismantling steps, tools or technologies needed to access the targeted components.

(3) The information referred to in point (1) shall be available until at least 15 years after the placing on the market of the last unit of a product model.

3. INFORMATION REQUIREMENTS

From [*12 months after the entry into force of this Regulation*]:

(1) Manufacturers, importers or authorised representatives shall provide in the technical documentation and make publicly available on free-access websites the following information:

(a) compatibility with removable memory cards, if any;

(b) indicative weight range of the following critical raw materials and environmentally relevant materials:

(i) cobalt in the battery (weight range: less than 0,5 g, between 0,5 g and 3 g, above 3 g),

(ii) tantalum in capacitors (weight range: less than 0,01 g, between 0,01 g and 0,2 g, above 0,2 g),

(iii) neodymium in loud speakers, vibration motors, and other magnets (weight range: less than 0,1 g, between 0,1 g and 0,5 g, above 0,5 g), and

(iv) gold in all components (weight range: less than 0,02 g, between 0,02 g and 0,1 g, above 0,1 g);

(c) recyclability rate Rcyc;

(d) the percentage of recycled content for the product or a part thereof, where available.

(2) Manufacturers, importers or authorised representatives shall provide user instructions in the form of a user manual on a free access website of the manufacturer, importer or authorised representative, and on the sales packaging of the device. Where the package does not include a charger, those instructions shall include the following information: “For environmental reasons this package does not include a charger. This device can be powered with most USB power adapters and a cable with USB Type-C plug”.

D. Slate tablets

1. RESOURCE EFFICIENCY REQUIREMENTS

1.1. Design for repair and reuse

(1) Availability of spare parts:

(a) From [12 months after the entry into force of this Regulation], manufacturers, importers or authorised representatives shall make available to professional repairers at least the following spare parts, including required fasteners, if not reusable, for a minimum period from one month after the date of placement on

the market until 6 years after the date of end of placement on the market, when present:

(i) battery;

(ii) back cover or back cover assembly;

(iii) display assembly;

(iv) front-facing camera assembly;

(v) rear-facing camera assembly;

(vi) external audio connector(s);

(vii) external charging port(s);

(viii) mechanical button(s);

(ix) main microphone(s);

(x) speaker(s);

(xi) hinge assembly;

(xii) mechanical display folding mechanism;

(xiii) protective foil for foldable displays;

(xiv) charger, unless the device complies with [OP please add reference to common charger provision, Article 3(4) in the proposal] of Directive 2014/53/EU;

(xv) SIM tray and memory card tray, if there is an external slot for a SIM or memory card tray.

(b) From [12 months after the entry into force of this Regulation], manufacturers, importers or authorised representatives shall make available to to professional repairers and end-users at least protective foils for foldable displays, for a minimum period from one month after the date of placement on the market until 5 years after the date of end of placement on the market.

(c) From *[OP: please insert the date = 18 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall:

(i) make available to end-users at least the following spare parts, for a minimum period from 1 month after the date of placement on the market until 5 years after the date of end of placement on the market:

– battery;

– back cover or back cover assembly, if to be fully removed for replacement of the battery.

(ii) or, as an alternative to point (i), ensure that:

– the battery endurance in cycles achieves a minimum of 500 full charge cycles, and after 500 full charge cycles the battery must, in addition, have, in a fully charged state, a remaining capacity of at least 83 % of the rated capacity;

– the battery endurance in cycles achieves a minimum of 1000 full charge cycles, and after 1000 full charge cycles the battery must, in

addition, have, in a fully charged state, a remaining capacity of at least 80 % of the rated capacity.

(d) From [*OP: please insert the date = 18 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall make available to end-users at least the following spare parts, for a minimum period from one month after the date of placement on the market until 6 years after the date of end of placement on the market:

(i) display assembly;

(ii) charger, unless the device complies with [OP please add reference to common charger provision, Article 3(4) in the proposal] of Directive 2014/53/EU;

(iii) SIM tray and memory card tray, if there is an external slot for a SIM or memory card tray.

(e) From [*12 months after the entry into force of this Regulation*], spare parts concerned by points (a) and (b) shall not be assemblies comprising more than one of the listed spare part types, except for:

(i) microphones which might be part of a loudspeaker or external charging port assembly;

(ii) external audio connector(s) and external charging port(s) which might be combined as the same port;

(iii) hinge assembly which might be part of a mechanical display folding mechanism.

(f) From [*12 months after the entry into force of this Regulation*], the list of spare parts concerned by points (a) and (b) and the procedure for ordering them shall be publicly available on the free access website of the manufacturer, importer or authorised representative, from one month after the date of placement on the market and until the end of the period of availability of these spare parts.

(g) From [*12 months after the entry into force of this Regulation*], the repair instructions for parts concerned by point (b) shall be publicly available at no cost on the free access website of the manufacturer, importer or authorised representative, from the date of placement on the market and until 7 years after the date of end of placement on the market.

(h) From [*OP: please insert the date = 18 months after the entry into force of this Regulation*], the repair instructions for parts concerned by points (c), when applicable, and (d) shall be publicly available at no cost on the free access website of the manufacturer, importer or authorised representative, from the date of placement on the market and until 7 years after the date of end of placement on the market.

(2) Access to repair and maintenance information

From [12 months after the entry into force of this Regulation], manufacturers, importers or authorised representatives shall, from one month after the date of placement on the market until 7 years after the date of end of placement on the market, provide access to the repair and maintenance information to professional repairers for parts covered by points 1(a) and (b) in the following conditions, unless that information is made publicly available on the free access website referred to in points 1(g) and (h):

(a) The manufacturer's, importer's or authorised representative's website shall indicate the process for professional repairers to register for access to information; to accept such a request, the manufacturers, importers or authorised representatives may require the professional repairer to demonstrate that:

(i) the professional repairer has the technical competence to repair slate tablets and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point;

(ii) the professional repairer is covered by insurance covering liabilities resulting from its activity regardless of whether this is required by the Member State.

(b) Manufacturers, importers or authorised representatives shall accept or refuse the registration within 5 working days from the date of request. In the case of refusal, a clear justification will be provided to the requestee outlining the reasons behind such decision, which shall be revoked, if the same professional repairer requests to be registered with updated information, which complies with the conditions for being granted access.

(c) Manufacturers, importers or authorised representatives may charge reasonable and proportionate fees for access to the repair and maintenance information or for receiving regular updates of such information. The registration as such shall be provided for free. A fee shall be considered reasonable in particular if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information.

(d) Once registered, a professional repairer shall have access, within one working day after requesting it, to the requested repair and maintenance information. The information may be provided for an equivalent model or model of the same family, if relevant.

(e) The repair and maintenance information referred to in (a) shall include:

(i) the unequivocal product identification;

(ii) a disassembly map or exploded view;

(iii) wiring and connection diagrams, as required for failure analysis;

(iv) electronic board diagrams, to the level of detail needed to replace parts covered by point 1 (a);

(v) a list of necessary repair and test equipment;

(vi) technical manual of instructions for repair;

(vii) diagnostic fault and error information (including manufacturer-specific codes, where applicable);

(viii) component and diagnosis information (such as minimum and maximum theoretical values for measurements, except for personal identifiable information, except if relevant for a repair operation concerned by points 1 (a), (b), (c));

(ix) instructions for software and firmware (including reset software);

(x) information on how to access data records of reported failure incidents stored on the device (where applicable and except for personal identifiable information such as related to user behavior and location information);

(xi) the procedure for user authorisation of parts replacement when required for a repair, and software tools, firmware and similar auxiliary means required for full functionality of the spare part and device after repair, such as remote or onsite authorisation of serial numbers;

(xii) information on how to access professional repair (internet webpages, addresses, contact details).

(f) Without prejudice to intellectual property rights, third parties shall be allowed to use and publish unaltered repair and maintenance information initially published by the manufacturer, importer or authorised representative and covered by point (e) once the manufacturer, importer or authorised representative terminates access to that information after the end of the period of access to repair and maintenance information.

(g) For access to information and tools referred to in point (e)(xi), the manufacturer, importer or authorised representative might require the owner of the device to notify the manufacturer, importer or authorised representative of the intended repair case. For parts referred to in point (e)(xi), that are relevant for user identification or data security, manufacturers, importers or authorised representatives may provide remote authorisation of serial numbers directly to the end-user.

(h) In case access to personal identifiable information is required to perform a repair operation covered by points 1 (a), (c), (d), the user must be informed and must authorise access to that information.

(3) Maximum delivery time of spare parts

From [*12 months after the entry into force of this Regulation*]:

(a) During the period referred to in points 1(a) and (b) the manufacturers, importers or authorised representatives shall ensure the delivery of the spare parts within 5 working days after having received the order.

(b) In the case of spare parts covered by point 1(a) the availability of spare parts may be limited to professional repairers registered in accordance with point 2 (a) and (b).

(4) Maximum price of spare parts

During the period referred to in points 1(a) and (b) the manufacturers, importers or authorised representatives shall indicate an expected maximum pre-tax price at least in Euro for spare parts listed in points 1(a) and (b) and 1(c), including the pre-tax price of fasteners and tools, if supplied with the spare part, on the free access website of the manufacturer, importer or authorised representative. Where spare parts listed in point 1(a) and (b) are made available to end-users, the expected maximum pre-tax price refers to the price for professional repairers and end-users.

(5) Disassembly requirements

Manufacturers, importers or authorised representatives shall meet the following disassembly requirements:

(a) From [*12 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall ensure, that the process for replacement of parts referred to in point 1(a) meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible in at least one of the following ways;

– with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

– with commercially available tools.

(iii) the process for replacement shall, as a minimum, be able to be carried out in a workshop environment;

(iv) the process for replacement shall, as a minimum, be able to be carried out by a generalist.

(b) From [*12 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall ensure, that the process for replacement of parts referred to in point 1(b) meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

(iii) the process for replacement shall be able to be carried out in a use environment;

(iv) the process for replacement shall be able to be carried out by a layman.

(c) From [*OP: please insert the date = 18 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall ensure that the process for battery replacement:

(i) meets he following criteria:

– fasteners shall be reusable;

– the process for replacement shall be feasible with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

– the process for replacement shall be able to be carried out in a use environment;

– the process for replacement shall be able to be carried out by a layman.

(ii) or, as an alternative to point (i), ensure that:

– the process for battery replacement meets the criteria set out in (a);

– the battery endurance in cycles achieves a minimum of 500 full charge cycles, and after 500 full charge cycles the battery must, in

addition, have in a fully charged state, a remaining capacity of at least 83 % of the rated capacity;

- the battery endurance in cycles achieves a minimum of 1000 full charge cycles, and after 1000 full charge cycles the battery must, in addition, have in a fully charged state, a remaining capacity of at least 80 % of the rated capacity.

(d) From [*OP: please insert the date = 18 months after the entry into force of this Regulation*], manufacturers, importers or authorised representatives shall ensure that the process for display assembly replacement meets the following criteria:

(i) fasteners shall be removable or reusable;

(ii) the process for replacement shall be feasible in at least on of the following ways:

– with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools;

– with commercially available tools.

(iii) the process for replacement shall, as a minimum, be able to be carried out in a workshop environment;

(iv) the process for replacement shall, as a minimum, be able to be carried out by a generalist.

(6) Preparation for reuse

From *[12 months after the entry into force of this Regulation]*, manufacturers, importers or authorised representatives shall ensure, that devices:

(a) encrypt user data by default using a random encryption key;

(b) include a software function, that resets the device to its factory settings and erases securely by default the encryption key and generates a new one;

(c) record the following data from the battery management system in the system settings or another location accessible for end-users:

(i) Date of manufacturing of the battery;

(ii) Date of first use of the battery;

(iii) Number of full charge/discharge cycles (reference: rated capacity);

(iv) Measured state of health (remaining full charge capacity relative to the rated capacity in %).

1.2. Design for reliability

From *[12 months after the entry into force of this Regulation]*:

(1) Scratch resistance: Manufacturers, importers or authorised representatives shall ensure that the screen of the device passes the hardness level 4 on the Mohs hardness scale, except for foldable slate tablets designed to be used with a permanently attached protective foil on the foldable display.

(2) Protection from dust and water: manufacturers, importers or authorised representatives shall ensure that the devices are protected against the ingress of solid foreign objects of size bigger than 1millimeter and splashing of water.

(3) Battery endurance in cycles: Manufacturers, importers or authorised representatives shall ensure that the devices achieve at least 500 cycles at 80 % remaining capacity, to be tested under charging conditions where the charging rate is limited by the battery management system and not by the power delivery capabilities of the power supply.

(4) Battery management:

(a) Manufacturers, importers or authorized representatives shall include an optional charging feature selectable by the user which terminates the charging process automatically, when the battery is charged to 80 % of its full capacity;

(b) Manufacturers, importers or authorised representatives shall provide a power management feature, which by default ensures that once the battery is fully charged there is no further charging power supplied to the battery unless the charge level drops below 95 % of its maximum capacity; users shall have the possibility to disable this feature.

(5) Operating system updates:

(a) where manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with Union legislation, security updates or functionality updates to the operating system installed on a product model, they shall ensure that such updates are available at no cost at least until the date of end of placement on the market.

(b) where, after the date of end of placement on the market of a product model, manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with Union legislation, security updates to the operating system installed on that product model at the moment of end of placement on the market, they shall ensure that such updates are available at no cost for at least 5 years after the date of end of placement on the market.

(c) where, after the date of end of placement on the market of a product model, manufacturers, importers or authorised representatives provide, either voluntarily or in compliance with Union legislation, functionality updates to the operating system installed on that product model at the moment of end of placement on the market, they shall ensure that such updates are available at no cost for at least 3 years after the date of end of placement on the market.

(d) security updates mentioned under points (a) and (b) need to be available to the user at the latest 2 months after the public release of a security patch, or the source code of an update of the underlying operating system or, if the source code is not publicly released, after an update of the same operating system is released by the operating system provider or on any other product of the same brand.

(e) functionality updates mentioned under points (a) and (c) need to be available to the user at the latest 4 months after the public release of the source code of an update of the underlying operating system or, if the source code is not publicly released, after an update of the same operating system is released by the operating system provider or on any other product of the same brand.

(f) an operating system update may combine a security and a functionality update.

(g) before an operating system update is released manufacturers, importers or authorised representatives shall perform appropriate quality testing and shall make publicly available on a website the specification of performance tests against which the update is tested. In case a released operating system software shows a negative impact on device performance under conditions corresponding to the specified performance tests, manufacturers, importers or authorised representatives shall modify the released operating system to ensure at least the same performance as before the update within a reasonable period of time, free of charge and without causing significant inconvenience to the consumer.

(h) after the end of placement on the market manufacturers, importers or authorised representatives shall ensure that the user has the option to restore the operating system version which was available for this model on the date of end of placement on the market, or, alternatively, any earlier one. Prior to the reinstallation of this operating system version the user shall be notified about potential security issues, the risk of data loss and the risk of incompatibility with software provided by third parties.

1.3. Marking of plastic components

From *[12 months after the entry into force of this Regulation]*, plastic components heavier than 50 g shall be marked by specifying the type of polymer with the appropriate standard symbols or abbreviated terms set between the punctuation marks ‘>’ and ‘<’ as specified in available standards. The marking shall be legible.

Plastic components shall be exempt from marking requirements provided the following conditions are fulfilled:

(i) the marking is not possible because of the shape or size;

(ii) the marking would impact on the performance or functionality of the plastic component;

(iii) marking is technically not possible because of the molding method.

For the following plastic components no marking shall be required:

(i) packaging, tape, labels and stretch wraps;

(ii) wiring, cables and connectors, rubber parts and any other component where not enough appropriate surface area is available for the marking to be of a legible size;

(iii) PCB assemblies, PMMA boards, optical components, electrostatic discharge components, electromagnetic interference components, speakers;

(iv) transparent parts where the marking would obstruct the function of the part in question.

1.4. Recyclability requirements

From *[12 months after the entry into force of this Regulation]*:

(1) Manufacturers, importers or their authorised representatives shall, without prejudice to Article 15(1) of Directive 2012/19/EU, make available, on a free-access website, the dismantling information needed to access any of the products components referred to in Annex VII, point 1, of Directive 2012/19/EU.

(2) This information referred to in point (1) shall include the sequence of dismantling steps, tools or technologies needed to access the targeted components.

(3) The information referred to in point (1) shall be available until at least 15 years after the placing on the market of the last unit of a product model.

2. INFORMATION REQUIREMENTS

From *[12 months after the entry into force of this Regulation]*:

(1) Manufacturers, importers or authorised representatives shall provide in the technical documentation and make publicly available on free-access websites the following information:

(a) compatibility with removable memory cards, if any.

(b) indicative weight range of the following critical raw materials and environmentally relevant materials:

(i) cobalt in the battery (weight range: less than 10 g, between 10 g and 20 g, above 20 g),

(ii) tantalum in capacitors (weight range: less than 0,01 g, between 0,01 g and 0,1 g, above 0,1 g),

(iii) neodymium in loud speakers, vibration motors, and other magnets (weight range: less than 0,2 g, between 0,2 g and 1 g, above 1 g), and

(iv) gold in all components (weight range: less than 0,02 g, between 0,02 g and 0,1 g, above 0,1 g).

(c) recyclability rate Rcyc.

(d) the percentage of recycled content for the product or a part thereof, where available.

(e) ingress protection rating.

(f) minimum battery endurance in cycles in number of cycles.

(2) Manufacturers, importers or authorised representatives shall provide user instructions in the form of a user manual on a free access website of the manufacturer, importer or authorised representative, including the following:

(a) how to access on the device information from the battery management system on:

(i) date of manufacturing of the battery;

(ii) date of first use of the battery;

(iii) number of full charge/discharge cycles (reference: rated capacity);

(iv) measured state of health (remaining full charge capacity relative to the rated capacity in %).

(b) instructions for battery maintenance, including:

(i) impacts on battery lifetime related to exposing the device to elevated temperatures, state of charge, fast charging and other known adverse effects on battery lifetime;

(ii) effects of switching off radio connections, such as WiFi, Bluetooth, on power consumption;

(iii) information about wether the device supports other features, which extend battery lifetime, such as smart charging and about how these features are activated or under which conditions these features work best.

(c) instructions for restoring operating system versions referred to in part 1.2, part, point 5(c)

(3) Manufacturers, importers or authorised representatives shall ensure that:

(a) Information that data encryption is enabled by default is displayed to the user in the course of configuring a new device, including an explanation that this eases data erasure through factory reset;

(b) If wireless charging is selected, a message notifying the user that wireless charging will likely increase the energy use in the charging of the battery.

(4) Manufacturers, importers or authorised representatives shall provide user instructions in the form of a user manual on a free access website of the manufacturer, importer or authorised representative, and on the sales packaging of the device. Where the package does not include a charger, those instructions shall include the following information: “For environmental reasons this package does not include a charger. This device can be powered with most USB power adapters and a cable with USB Type-C plug.”

ANNEX III
Measurements and calculations

1. For the purposes of compliance and verification of compliance with the requirements laid down in this Regulation, measurements and calculations shall be made using harmonised standards, or other reliable, accurate and reproducible methods, which take into account the generally recognised state-of-the-art methods and are in line with the provisions set out below. The reference numbers of those harmonised standards have been published for this purpose in the Official Journal of the European Union (OJ).

2. In the absence of relevant standards and until the publication of the references of the relevant harmonised standards in the OJ, the transitional testing methods set out in Annex IIIa or other reliable, accurate and reproducible methods, which take into account the generally recognised state-of-the-art, shall be used.

3. Cordless phones shipped with a base station shall be tested for networked standby power consumption, with the following test settings:

   (a) Tests shall be performed on the base station both without the handset on the base station as well as with the charged handset on the base station.

   (b) The devices shall be measured in the condition as delivered to the end customer (factory setting).

   (c) The power consumptions shall be measured as average power consumptions over a time period of 10 minutes.

   (d) The measurements shall be carried out with a mains supply voltage of 230V ± 1 %.

4. Cordless phones shipped with a charging cradle shall be tested for networked standby power consumption, with the following test settings:

   (a) Tests shall be performed with the charged handset placed on the charging cradle.

   (b) The devices shall be measured in the condition as delivered to the end customer (factory setting).

   (c) The power consumptions shall be measured as average power consumptions over a time period of 10 minutes.

   (d) The measurements shall to be carried out with a mains supply voltage of 230V ± 1 %.

5. Batteries of mobile phones and slate tablets shall be tested for battery endurance in cycles until the battery's usable electrical capacity has reached 80 % of its rated capacity; the battery shall be tested according to the default charging algorithms implemented by the manufacturer. The resulting number of cycles shall be rounded down to full hundreds and stated as "≥ x00".

6. Ingress protection against particle and moisture ingress shall be expressed as an IP code, corresponding with the levels listed in Table 1. Tests shall be performed without protective cover.

Table 1

Allowable ingress protection classes

Level	Ingress of solid foreign objects	Ingress of water with harmful effects
	Object size	Protection against
4	≥1 mm	splashing of water
5	dust-protected	jetting of water
6	dust-tight	powerful jetting of water
7	n.a.	temporary immersion, 1 m depth
8	n.a.	continuous immersion, 1 m or more depth

7. The number of falls per unit shall be determined with the following test conditions, without protective foils and separate protective cover, if any, and in the fully extended state, if applicable:

(a) fall height 1m;

(b) after a defined number of falls corresponding to the intervals specified in Table 2, the unit under test has to be functional without defect, with particular reference to the following functionalities, where applicable:

(i) integrity of screen;

(ii) display without pixel defects or similar malfunctions;

(iii) all cameras, tested for still images and videos;

(iv) mobile communication;

(v) Bluetooth connectivity;

(vi) WiFi connectivity;

(vii) battery charging: wired and wireless;

(viii) display touch sensitivity;

(ix) responsive buttons and switches;

(x) vibration alarm;

(xi) main microphone(s);

(xii) loudspeaker;

(xiii) headset audio.

(c) cracks of the frame or backside shall not be considered a defect as long as full functionality and safe use of the unit under test is given;

(d) cracks of the touchscreen and of any other cover layers of a display shall not be considered a defect as long as full functionality and safe use of the unit under test is given;

(e) in case of no determined defect the test shall be continued, placing the unit under test in the tumble tester in the same orientation the device was found when the test was interrupted;

(f) in case of a determined defect and in any case after 350 falls the test of the unit is terminated.

Table 2

Test intervals for determining if the unit is defective (smartphones)

Falls per unit	Unit tested without any protective foil or separate protective cover	Unit tested in fully extended state, if applicable
100	1st check for defects	1st check for defects

Repeated free fall tests shall be performed with five units of each model for each of the applicable test cases.

The minimum required repeated free fall reliability corresponds to the number of falls which have been passed by at least three out of the five units under test.

ANNEX IIIa
Transitional Methods

Table 1

References and qualifying notes for mobile phones, cordless phones and slate tablets

Parameter	Source	Reference Test Method / Title	Notes
Disassembly requirements	CEN	EN 45554:2020	Fasteners: please refer to Table A.1 of the standard Tools: please refer to Table A.2 of the standard, unless differently specified in this Regulation Working environment: please refer to Table A.4 of the standard Skill level: please refer to Table A.5 of the standard
Protection against particles and water	IEC	IEC 60529:1989/AMD2 :2013/COR1:2019	dust tight and protected against immersion in water up to 1 meter depth: IP67 protected against the ingress of solid foreign objects of size bigger than 1millimeter and splashing of water: IP44
Rated capacity and battery endurance in cycles	CENELEC	IEC EN 61960-3:2017	Battery endurance in cycles shall be measured with the following test sequence: 1) one cycle at 0,2C discharge rate and measure capacity 2) cycles 2-499 at 0,5C discharge rate 3) repeat step 1 To determine the number of cycles beyond 500 cycles, the test shall be continued 4) 99 cycles at 0,5 C discharge rate 5) repeat step 1 6) repeat steps 4 and 5 until measured capacity is below 80% Tests shall be performed with an external power source, which does not limit the power draw of the battery and leaves it to the specified default charging algorithm to regulate the charging rate.
Scratch hardness	CEN	EN 15771:2010	Scratch hardness shall be tested on the visible display area, without protective cover on the display
Recycled content of the product or of a part	CEN	EN 45557:2020	
Standardised physical dimensions of rechargeable batteries	IEC	IEC 60086-2:2015	
Base station simulator for battery endurance test	ETSI	ETSI TR 125 914 - V16.0.0, chapter 9	
Battery endurance test ambient conditions	ECMA	ECMA 383	Ambient temperature (23±5) °C, relative humidity 10 % to 80 %, ambient light (250±50) Lux

Resistance to accidental drops	IEC	IEC 60068-2-31, Free fall repeated – Procedure 2	Mobile phones shall be tested for resistance to accidental drops, fall height 1 meter; the test has to be performed with 5 units consecutively and is passed, if at least 3 units pass the test. Protective foils or separate protective covers, if any, have to be removed prior to testing.
R_{cyc}		EN 45555:2019	To be calculated as mass based recyclability rate, with the following reference end-of-life scenario: • Battery: Co, Li ($R_{cyc,Li}$ 90 %) masses count towards recyclability rate • Mono-material parts removed when extracting the battery: Steel, Al, Mg, plastics or copper masses count towards recyclability rate • All other parts: Cu, Co, Sn ($R_{cyc,Sn}$ 50 %), Ni ($R_{cyc,Ni}$ 85 %), In ($R_{cyc,In}$ 50%), Au, Ag, PGM ($R_{cyc,PGM}$ 95 %) masses count towards recyclability rate
Critical raw material (CRM) content		EN 45558:2019	To be applied to gold following the same approach as for CRMs
Secure deletion	NIST	Guidelines for Media Sanitization, NIST Special Publication 800-88 - Revision 1	

ANNEX IV
Verification procedure for market surveillance purposes

The verification tolerances defined in this Annex relate only to the verification by Member State authorities of the declared values and shall not be used by the manufacturer, importer or authorised representative as an allowed tolerance to establish the values in the technical documentation or in interpreting those values with a view to achieving compliance or to communicate better performance by any means.

Where a model has been designed to be able to detect that it is being tested (e.g. by recognising the test conditions or test cycle), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in this Regulation or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models shall be considered not compliant.

As part of verifying the compliance of a product model with the requirements laid down in this Regulation pursuant to Article 3(2) of Directive 2009/125/EC, the authorities of the Member States shall apply the following procedure for the requirements referred to in Annex II:

1. The Member State authorities shall verify one single unit of the model pursuant to points 2(a), (b), (c), (d) and (e), except for the requirement referred to in Annex II.1.2.1 (resistance to accidental drops), where the test shall be performed with five units of the model pursuant to points 2(a), (b), (c), (d) and (f), and except for the requirement referred to in Annex II.1.2.4 (battery endurance in cycles), where the test shall be performed with five units of the model pursuant to points 2 (a), (b), (c),(d) and (g).

2. The model shall be considered to comply with the applicable requirements where all of the following conditions are fulfilled:

    (a) the values given in the technical documentation pursuant to Annex IV, point 2, to Directive 2009/125/EC (declared values), and, where applicable, the values used to calculate those values, are not more favourable for the manufacturer, importer or authorised representative than the results of the corresponding measurements carried out pursuant to point (g) thereof;

    (b) the declared values meet any requirements laid down in this Regulation, and any required product information published by the manufacturer, importer or authorised representative does not contain values that are more favourable for the manufacturer, importer or authorised representative than the declared values;

    (c) when the Member State authorities check the unit of the model, they find that the manufacturer, importer or authorised representative has put in place a system that complies with the requirements laid down in Article 6(2);

    (d) when the Member State authorities check the unit of the model, it complies with the requirements laid down in Annex II;

    (e) when the Member State authorities test the unit of the model, the determined values (the values of the relevant parameters as measured in

testing and the values calculated from these measurements) comply with the respective verification tolerances as set out in Table 4;

(f) when the Member State authorities test five units of the model, the determined values (that is the values of the relevant parameters as measured in testing and the values calculated from those measurements) comply with the respective pass rate as given in Table 5;

(g) when the Member State authorities test the five units of the model, the arithmetic mean of the determined values (that is the values of the relevant parameters as measured in testing and the values calculated from these measurements) comply with the respective verification tolerances as given in Table 4.

3. If the results referred to in point 2(a), (b), (c), (d) or (g) are not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.

4. If the result referred to in point 2(e) is not achieved, the Member State authorities shall select three additional units of the same model for testing.

5. If the result referred to in point 2(f) is not achieved, the Member State authorities shall select five additional units of the same model for testing. As an alternative, the additional units selected may be of one or more equivalent models.

6. The model shall be considered to comply with the applicable requirements if, for these units tested pursuant to point 4, where applicable, the arithmetical mean of the determined values complies with the respective verification tolerances set out in Table 4.

7. The model shall be considered to comply with the applicable requirements if for these ten units tested pursuant to point 5, where applicable, the pass rate complies with the respective values given in Table 5.

8. If the result referred to in points 6 and 7 is not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.

9. The Member State authorities shall provide all relevant information to the authorities of the other Member States and to the Commission without delay once a decision has been taken on the non-compliance of the model according to points 3, 6, 7 or according to the second paragraph of this Annex.

The Member State authorities shall use the measurement and calculation methods set out in Annex III.

The Member State authorities shall only apply the verification tolerances that are set out in Table 4 and shall use only the procedure described in the third paragraph for the requirements set out in this Annex. For the parameters in Table 4, no other tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied.

Table 4

Verification tolerances

Parameters	Verification tolerances
Networked standby power consumption [W]	The determined value[a] shall not be more than 0,10 W higher than the declared value.
battery endurance per cycle (END_{device} [h])	The determined value[a] shall not be more than 2 hours lower than the declared value.
battery endurance in cycles – default settings [cycles]	The determined value[a] shall not be more than 20 cycles lower than the declared value.
rated battery capacity (C_{rated} [mAh])	The determined value[a] shall not be more than 10% higher than the declared value.

[a] in the case of three additional units tested as prescribed in point 4, the determined value means the arithmetic mean of the values determined for these three additional units.

Table 5

Pass rates for measured parameters

Parameters	Pass rate
repeated free fall reliability	The determined value[a] corresponding to the declared value shall be met by at least 60 % of the tested devices.

ANNEX V
Benchmarks

At the time of entry into force of this Regulation, the best available technology on the market was identified as follows:

Mobile phones:

(1) resistance to accidental drops: >100 falls; >>100 falls for ruggedized devices;

(2) scratch resistance: 6;

(3) ingress protection rating: IP68 (in combination with user-replaceable battery);

(4) battery endurance per cycle: 63 hours talk time, 35 hours web browsing, 28 hours video playback;

(5) battery endurance in cycles: 1200 cycles.

Cordless phones:

(6) standby power cordless phones with base station: 0,4 W;

(7) standby power cordless phones with charging cradle only: < 0,05 W;

(8) ingress protection rating: IP65;

(9) battery endurance per cycle: 37 hours talk time; 18,5 days standby time with standard settings of the base station;

(10) compatibility with standard size batteries: yes.

Slate tablets:

(11) scratch resistance: 6;

(12) ingress protection rating: IP68;

(13) battery endurance per cycle: 14 hours active use;

(14) battery endurance in cycles: 1000 cycles.