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COMMISSION REGULATION (EU) …/…

of XXX

supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to the energy labelling of smartphones and tablets

(Text with EEA relevance)

WORKING DOCUMENT ON COMMISSION DELEGATED REGULATION (EU) …/...

of xx.yy.zzzz

supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of smartphones and tablets

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU[1], and in particular Article 11(5) and Article 16(1) thereof,

Whereas:

(1) Regulation (EU) 2017/1369 empowers the Commission to adopt delegated acts as regards the labelling or re-scaling of the labelling of product groups representing significant potential for energy savings and, where relevant, other resources.
(2) The Communication from the Commission COM/2020/98 (A new Circular Economy Action Plan for a cleaner and more competitive Europe) strongly fosters the improvement of product durability, reusability, upgradability and reparability. Under the Circular Electronics Initiative, regulatory measures for mobile phones and tablets under the Ecodesign Directive, so that devices are designed for energy efficiency and durability, reparability, upgradability, maintenance, reuse and recycling, are announced.
(3) The Commission has carried out a preparatory study to analyse the technical, environmental and economic aspects of mobile phones, smartphones and tablets. The preparatory study was conducted in close cooperation with stakeholders and interested parties in the EU and elsewhere.
(4) The preparatory study concluded that not just the energy use of products subject to this Regulation can be further reduced, but also the battery lifetime and consequently the product lifetime can significantly be improved by means of an energy labelling scheme for smartphones and tablets.
(5) Smartphones and tablets that are displayed at trade fairs should bear the energy label if the first unit of the model has already been placed on the market or is placed on the market at the trade fair.
(6) The electricity used by smartphones and tablets in conjunction with the effect of a limited battery lifetime represents a relevant share of direct and indirect energy consumption. The scope for reducing the energy consumption of smartphones and tablets is substantial.
(7) In total smartphones and tablets consumed 36,1 TWh of primary energy in 2020, all life cycle phases included. Without a regulation, these values are expected to increase to 36,5 TWh of

[1] OJ L 198, 28.7.2017, p. 1.

primary energy in 2030. The combined effect of the ecodesign and energy labelling regulation is expected to limit this 2030 value to 23,3 TWh, saving around 35% on the primary energy consumption of smartphones and tablets.

(8) The relevant product parameters should be measured or calculated using reliable, accurate and reproducible methods. Those methods should take into account recognised state-of-the-art measurement methods including, where available, harmonised standards adopted by the European standardisation bodies, as listed in Annex I to Regulation (EU) No 1025/2012 of the European Parliament and of the Council[2].

(9) To improve the effectiveness and credibility of this Regulation and to protect consumers, products that automatically alter their performance in test conditions with the objective of reaching a more favourable level for any of the parameters specified in this Regulation should not be allowed to be placed on the market.

(10) The technical documentation should be sufficient to allow market surveillance authorities to check the values published on the label and in the product information sheet. In accordance with Article 12 of Regulation 2017/1369, values for the measured and calculated parameters of the model should be entered into the product database.

(11) Recognising the growth of sales of energy-related products through internet hosting platforms, rather than directly from suppliers' websites, it should be clarified that internet sales platforms should be responsible for enabling the displaying of the label provided by the supplier in proximity to the price. They should inform the supplier of that obligation, but should not be responsible for the accuracy or content of the label and the product information sheet provided. However, in application of Article 14(1)(b) of Directive 2000/31/EC on electronic commerce, such internet hosting platforms should act expeditiously to remove or to disable access to information about the product in question if they are aware of the non-compliance (e.g. missing, incomplete or incorrect label or product information sheet) for example if informed by the market surveillance authority. A supplier selling directly to end-users via its own website is covered by dealers' distance selling obligations referred to in Article 5 of Regulation (EU) 2017/1369.

(12) The measures provided for in this Regulation were discussed by the Consultation Forum and the Member State experts in accordance Article 14 of Regulation (EU) 2017/1369.

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter and scope

This Regulation establishes requirements for the labelling of, and the provision of supplementary product information on, smartphones and tablets.

[2] Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardization, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council (OJ L 316, 14.11.2012, p. 12).

Article 2

Definitions

For the purpose of this Regulation, the following definitions shall apply:

(1) *'mobile phone'* means a cordless handheld electronic device designed for long-range voice communication over either a cellular telecommunications network or a satellite based telecommunications network, requiring a SIM card, eSIM or similar means to identify the connected parties. It is designed for battery mode usage, and connection to mains via an external power supply is mainly for battery charging purposes;

(2) *'smartphone'* means a mobile phone characterized by WiFi connectivity, mobile use of internet services, and the ability to accept original and third-party software applications. A smartphone has an integrated touch screen display with a diagonal size between 4 and 7 inches. Devices with more than one and/or foldable displays are characterized as smartphones if at least one of the displays falls into the size range in either opened or closed mode;

(3) *'tablet'* means a type of notebook computer designed for portability that includes an integrated touch-sensitive display with a diagonal size greater than 7 inches but does not have an integrated, physical attached keyboard in its as-shipped configuration. A tablet relies on a wireless network connection, which might or might not be a telecommunications network, and is primarily powered by an internal battery (with connection to the mains for battery charging, not primary powering of the device). A tablet is furthermore characterized by an operating system, mobile use of internet services, and the ability to accept original and third-party software applications;

(4) *'equivalent model' of smartphone or tablet* means a smartphone or tablet with the same technical characteristics according to the applicable product information requirements, but placed on the market as a different smartphone or tablet model by the same manufacturer, authorized representative or importer*;*

(5) *'point of sale'* means a location where smartphone or tablet units are displayed or offered for sale, hire or hire-purchase.

For the purposes of the Annexes, additional definitions are set out in Annex I.

Article 3

Obligations of suppliers

1. Suppliers shall ensure that:

   (a) each smartphone or tablet is supplied with a printed label in the format as set out in Annex III;

   (b) the values of the parameters of the product information sheet, as set out in Annex V, are entered into the public part of the product database;

   (c) if specifically requested by the dealer, the product information sheet shall be made available in printed form;

   (d) the content of the technical documentation, set out in Annex VI, is entered into the product database;

   (e) any visual advertisement for a specific model of smartphones and tablets contains the energy efficiency class and the range of energy efficiency classes available on the label in accordance with Annex VII and Annex VIII;

(f) any technical promotional material concerning a specific model of smartphones and tablets, including technical promotional material on the internet, which describes its specific technical parameters includes the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII;

(g) an electronic label in the format and containing the information, as set out in Annex III, is made available to dealers for each smartphone or tablet model;

(h) an electronic product information sheet, as set out in Annex V, is made available to dealers for each smartphone and tablet model.

2. The energy efficiency class and the repeated free fall reliability class are defined in Annex II and shall be calculated in accordance with Annex IV.

Article 4
Obligations of dealers

Dealers shall ensure that:

(a) each smartphone and tablet, at the point of sale, including at trade fairs, bears the label provided by suppliers in accordance with point 1(a) of Article 3, with the label or the energy class being displayed in such a way as to be clearly visible;

(b) in the event of distance selling, the label and product information sheet are provided in accordance with Annexes VII and VIII;

(c) any visual advertisement for a specific model of smartphones or tablets, including on the internet, contains the energy efficiency class and the range of energy efficiency classes available on the label, in accordance with Annex VII;

(d) any technical promotional material concerning a specific model of smartphone or tablet, including technical promotional material on the internet, which describes its specific technical parameters includes the energy efficiency class of that model and the range of energy efficiency classes available on the label, in accordance with Annex VII.

Article 5
Obligations of internet hosting platforms

Where a hosting service provider as referred to in Article 14 of Directive 2000/31/EC of the European Parliament and of the Council[3] allows the direct selling of smartphones or tablets through its internet site, the service provider shall enable the showing of the electronic label and electronic product information sheet provided by the dealer on the display mechanism in accordance with the provisions of Annex VIII and shall inform the dealer of the obligation to display them.

[3] Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce) (OJ L 178 , 17.07.2000, p. 1).

Article 6

Measurement methods

The information to be provided pursuant to Articles 3 and 4 shall be obtained by reliable, accurate and reproducible measurement and calculation methods, which take into account the recognised state-of-the-art measurement and calculation methods set out in Annex IV.

Article 7

Verification procedure for market surveillance purposes

Member States shall apply the verification procedure laid down in Annex IX when performing the market surveillance checks referred to in paragraph 3 of Article 8 of Regulation (EU) 2017/1369.

Article 8

Review

The Commission shall review this Regulation in the light of technological progress and present the results of this assessment, including, if appropriate, a draft revision proposal, of this review to the Consultation Forum no later *[OP – please insert date: X years after the entry into force of the present Regulation]*.

The review shall in particular assess the following:

(a) the appropriateness to revise the test methods to reflect changes in typical user behaviour and new functionalities;

(b) the level of the verification tolerances set out in Annex IX;

(c) the appropriateness to rescale the energy efficiency classes.

Article 9

Entry into force and application

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

It shall apply from xx month 2023.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, xx.yy.zzz

For the Commission

The President
Ursula VON DER LEYEN

ANNEX I

Definitions applicable for the annexes

In case of discrepancies with the same definitions given in Annex I of the (draft) Ecodesign Regulation on mobile phones and tablets, definitions given under Ecodesign are the correct ones.

In addition to the definitions laid down in article 2, the following definitions shall apply for the purpose of this Regulation:

(1) *'declared values'* means the values provided by the supplier for the stated, calculated or measured technical parameters, pursuant to Article 3(3) of Regulation (EU) 2017/1369 and in accordance with Article 3(1)(d) and Annex VI of this Regulation, for the verification of compliance by the Member State authorities;

(2) *'battery endurance per cycle'* means the time a smartphone or 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);

(3) '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);

(4) 'END_{talk} (h)' is the measured battery endurance per cycle for the function "phone call", expressed in hours;

(5) 'END_{web} (h)' is the measured battery endurance per cycle for the function "browsing the web", expressed in hours;

(6) 'END_{video} (h)' is the measured battery endurance per cycle for the function "playing a video", expressed in hours;

(7) '$END_{standby}$ (h)' is the measured battery endurance per cycle for the function "standby", expressed in hours;

(8) '$END_{Device,active}$ (h)' is the calculated battery endurance as calculated weighted value based on the measured endurance for defined functions, excluding standby, expressed in hours;

(9) 'C (h^{-1})' is a measure of the rate at which a battery is charged relative to its capacity, defined as the charge current divided by the capacity, expressed in 1/h;

(10) '*state of charge*' means the available capacity in a battery expressed as a percentage of rated capacity;

(11) '*fast charging*' means charging a battery at a charging rate of above 0,7C for at least part of the charging cycle between xx% [30%-60%] and 100% state of charge;

(12) '*IP*' means international protection and refers to the ingress protection of a device;

(13) '*fully extended state*' means a state of the device, where movable parts as intended for use, such as displays and keyboards, are unfolded, flipped open or similarly extended in a way, that the area of length times width is maximised;

(14) 'I_t' is the reference test current expressed as a multiple of I_t A, where I_t A = C_5 Ah/1 h, based on the rated capacity (C_5 Ah) of the battery.

ANNEX II

Energy efficiency classes

A. The energy efficiency class of a smartphone and a tablet shall be determined on the basis of its Energy Efficiency Index (EEI) as set out in point 1 of Annex III.

Table 1: Energy efficiency classes of smartphones and tablets

Energy Efficiency Class	Energy Efficiency Index (EEI)
A (most efficient)	EEI > 0,042
B	0,037 < EEI ≤ 0,042
C	0,032 < EEI ≤ 0,037
D	0,027 < EEI ≤ 0,032
E	0,022 < EEI ≤ 0,027
F	0,017 < EEI ≤ 0,022
G (least efficient)	EEI ≤ 0,017

B. The repeated free fall reliability class of a smartphone and a tablet shall be determined on the basis of the methodology set out in Annex IV.

Table 2: Repeated free fall reliability classes of smartphones and tablets

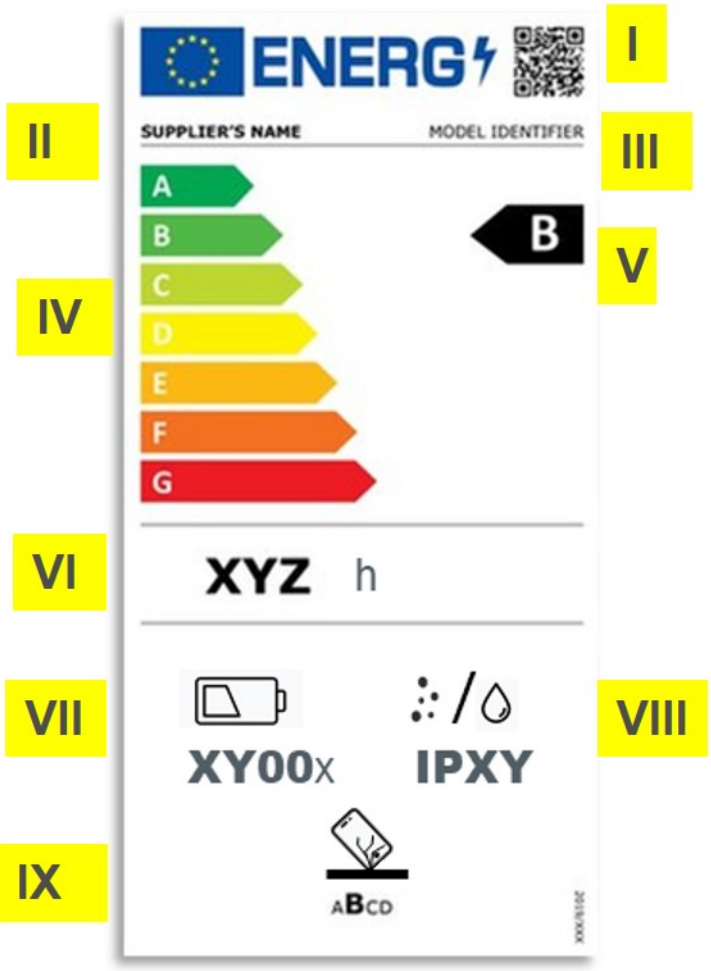
Repeated Free Fall Reliability Class	Falls without defect
A (most robust)	n > 350
B	300 < n ≤ 350
C	250 < n ≤ 300
D	200 < n ≤ 250
E	100 < n ≤ 200
F	50 < n ≤ 100
G (least robust)	n ≤ 50

ANNEX III

Label for smartphones and tablets

1. LABEL FOR SMARTPHONES AND TABLETS

Label:



The following information shall be included in the label for smartphones and tablets:

I. QR code;
II. supplier's name or trade mark;
III. supplier's model identifier, meaning the code, usually alphanumeric, which distinguishes a specific mobile phone or tablet model from other models with the same trade mark or supplier's name;
IV. scale of energy efficiency classes from A to G;
V. the energy efficiency class determined in accordance with Annex II;
VI. battery endurance per cycle, active use only ($END_{device,active}$) in h per full battery charge, rounded to full hours in accordance with point 2 of Annex III;
VII. battery endurance in cycles, in cycles, in ranges ≥500, ≥600, ≥700, ≥800, ≥900, ≥1000, ≥1100, ≥1200, ≥1300, ≥1400 in accordance with point 3 of Annex IV;
VIII. ingress protection rating in accordance with point 4 of Annex IV;

IX. repeated free fall reliability class determined in accordance with Annex II.

In the case of smartphones, if the label is not printed or attached on the part of the packaging meant to face the prospective customer, an arrow containing the letter of the energy efficiency class shall be displayed as hereafter, with the colour of the arrow matching the letter and the colour of the energy class. The size shall be such that the label is clearly visible and legible. The letter in the energy efficiency class arrow shall be Calibri Bold and positioned in the centre of the rectangular part of the arrow, with a border of 0,5 pt in 100 % black placed around the arrow and the letter of the efficiency class.

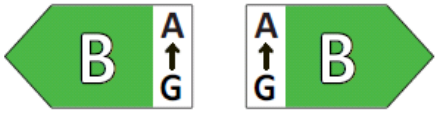


Figure 1: Coloured left/right arrow, with range of energy efficiency classes indicated

2. LABEL DESIGN FOR SMARTPHONES AND TABLETS

The design of the label for mobile phones and tablets shall be as in the figure below.

[image with exact dimensions to be inserted]

Whereby:

(a) The labels shall be at least (20 mm wide and 70 mm high). Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications above.

(b) The background of the label shall be 100 % white.

(c) The typefaces shall be Verdana and Calibri.

(d) The dimensions and specifications of the elements constituting the label shall be as indicated in the label design.

(e) Colours shall be CMYK – cyan, magenta, yellow and black, following this example: 0,70,100,0: 0 % cyan, 70 % magenta, 100 % yellow, 0 % black.

(f) The label shall fulfil all the following requirements (numbers refer to the figures above):

❶ the colours of the EU logo shall be as follows:

– the background: 100,80,0,0;

– the stars: 0,0,100,0;

❷ the colour of the energy logo shall be: 100,80,0,0;

❸ the QR code shall be 100 % black;

❹ the supplier's name shall be 100 % black and in Verdana Bold, 9 pt;

❺ the model identifier shall be 100 % black and in Verdana Regular 9 pt;

❻ the A to G scale shall be as follows:

– the letters of the energy efficiency scale shall be 100 % white and in Calibri Bold 19 pt; the letters shall be centred on an axis at (4,5 mm) from the left side of the arrows;

– the colours of the A to G scale arrows shall be as follows:

- A-class: 100,0,100,0;
- B-class: 70,0,100,0;
- C-class: 30,0,100,0;
- D-class: 0,0,100,0;
- E-class: 0,30,100,0;
- F-class: 0,70,100,0;
- G-class: 0,100,100,0;

❼ the internal dividers shall have a weight of 0,5 pt and the colour shall be 100 % black;

❽ the letter of the energy efficiency class shall be 100 % white and in Calibri Bold 33 pt. The energy efficiency class arrow and the corresponding arrow in the A to G scale shall be positioned in such a way that their tips are aligned. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow which shall be 100 % black;

❿ the pictograms shall be as shown as in the label design and as follows:

– the pictograms' lines shall have a weight of 1,2 pt and they and the texts (numbers and units) shall be 100 % black;

– the text under the pictogram(s) shall be in Verdana Bold 16 pt with the unit in Verdana Regular 12 pt, and it shall be centred under the pictogram;

⓫ the number of the regulation shall be 100 % black and in Verdana Regular 6 pt.

ANNEX IV

Measurement and calculation methods

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

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

Where a parameter is declared pursuant to Article 3(3) of Regulation (EU) 2017/1369 and in accordance with Table 7 of Annex VI, its declared value shall be used by the supplier for the calculations in this Annex.

1. CALCULATION OF THE ENERGY EFFICIENCY INDEX

Smartphones and tablets shall be tested for battery endurance per cycle, consecutively with the following test settings, each with a fully charged battery

(1) Phone call (smartphones only)

- all applications closed (except required system applications), all radios switched off except cellular network,
- for Dual-SIM devices only 1 SIM card inserted; for Dual-SIM devices with eSIM, eSIM to be switched off; for devices with eSIM only, eSIM to be used,
- initiate 3G call, or 4G in case of no 3G capability; test setting with a base station simulator, sending constant “power up command” to the terminal, i.e. the phone is commanded to transmit at full power,
- audio at 80% volume,
- measure talk time (END_{talk}) until phone shuts off (screens may shut off during a call, if this is the default setting)

(2) Browsing the web (smartphones and tablets)

- display brightness set to 200 candela per square meter (cd/m2); automatic screen brightness adjustment disabled
- 802.11n access point in short distance for full connectivity
- running an automated script which reloads a webpage every ten seconds; no flash elements on the web pages
- measure web browsing time (END_{web}) until phone shuts off

(3) Playing a video (smartphones and tablets)

- display brightness set to 200 candela per square meter (cd/m2); automatic screen brightness adjustment disabled
- radios on the device switched off (airplane mode)
- looping a standard-definition video
- end-point: battery state of charge at 10% (END_{video})

(4) Standby (smartphones and tablets)

- all applications closed (except required system applications), all radios switched off except cellular network,
- measure standby time ($END_{standby}$) until device shuts off

The endurance score is an aggregated and normalised value in hours, as a calculated value derived from the four types of battery endurance per cycle tests.

Overall battery endurance (END_{device}) in hours is calculated as follows:

(a) smartphones:

$$END_{device} = \frac{24}{(\frac{1}{END_{talk}} + \frac{1}{END_{web}} + \frac{1}{END_{video}} + \frac{21}{END_{standby}})}$$

(b) tablets:

$$END_{device} = \frac{24}{(\frac{1}{END_{web}} + \frac{1}{END_{video}} + \frac{22}{END_{standby}})}$$

The energy efficiency index (EEI) of a smartphone or tablet shall be calculated using the following equation:

$$EEI = \frac{END_{Device}}{C_{rated}}$$

Where:

C_{rated} is the rated battery capacity in mAh

2. MEASUREMENT AND CALCULATION OF THE BATTERY ENDURANCE PER CYCLE, ACTIVE USE ONLY

Overall battery endurance in active use ($END_{device,active}$) in hours is calculated as follows, based on measurements as set out in point 1:

(a) smartphones:

$$END_{device,active} = \frac{3}{(\frac{1}{END_{talk}} + \frac{1}{END_{web}} + \frac{1}{END_{video}})}$$

(b) tablets:

$$END_{device,active} = \frac{2}{(\frac{1}{END_{web}} + \frac{1}{END_{video}})}$$

3. MEASUREMENT OF THE BATTERY ENDURANCE IN CYCLES

1. Smartphones and 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 charged using the method declared by the manufacturer, which shall correspond to the default charging settings. The battery shall be discharged at a constant current of 0,2 I_t A until its voltage is equal to the specified final voltage.
2. Smartphones and tablets with fast charging functionality 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 charged using the method declared by the manufacturer, which shall correspond to the fast charging settings. The battery shall be discharged at a constant current of 0,2 I_t A until its voltage is equal to the specified final voltage.

3. The resulting number of cycles pursuant to points 1 and 2 shall be rounded down to full hundreds and stated as "≥ x00".

4. MEASUREMENT OF THE INGRESS PROTECTION

Ingress protection against particle and moisture ingress shall be stated as an IP code, corresponding with the levels listed in Table 3. Tests shall be performed without protective cover.

Table 3: 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

5. REPEATED FREE FALL RELIABILITY CLASS

The number of falls per unit shall be determined with the following test conditions, separately with protective cover (if supplied with the product), without protective cover, 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 4 and Table 5, 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. microphone;
xii. loudspeaker;
xiii. headset audio.

(c) 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;

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

If the unit is tested with protective cover, the protective cover shall be supplied in the same package with the smartphone or the tablet.

Table 4: Test intervals for determining if the unit is defective (smartphones)

Falls per unit	Unit tested with protective cover, if applicable	Unit tested without protective cover	Unit tested in fully extended state, if applicable
50			
100		1st check for defects	1st check for defects
150		2nd check for defects	2nd check for defects
200	1st check for defects	3rd check for defects	3rd check for defects
250	2nd check for defects	4th check for defects	4th check for defects
300	3rd check for defects	5th check for defects	5th check for defects
350	4th check for defects	6th check for defects	6th check for defects

Table 5: Test intervals for determining if the unit is defect (tablets)

Falls per unit	Unit tested with protective cover, if applicable	Unit tested without protective cover	Unit tested in fully extended state, if applicable
50	1st check for defects	1st check for defects	1st check for defects
100	2nd check for defects	2nd check for defects	2nd check for defects
150	3rd check for defects	3rd check for defects	3rd check for defects
200	4th check for defects	4th check for defects	4th check for defects
250	5th check for defects	5th check for defects	5th check for defects
300	6th check for defects	6th check for defects	6th check for defects
350	7th check for defects	7th check for defects	7th check for defects

Repeated free fall tests shall be performed with 5 units of each model for each of the applicable test cases.

The repeated free fall reliability classes correspond to the number of falls, which have been passed by at least 3 out of the 5 units under test.

ANNEX IVa

Transitional Methods

References and qualifying notes for smartphones and tablets

Parameter	Source	Reference Test Method / Title	Notes
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	
Scratch hardness	CEN	EN 15771:2010	Scratch hardness shall be tested on

			the visible display area, without protective cover on the display
Battery endurance test ambient conditions	ECMA	ECMA 383	Ambient temperature (23±5) °C, relative humidity 10% to 80%, ambient light (250±50) Lux
Free fall tests	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. Tablets shall be tested for resistance to accidental drops, fall height 1 meter; the test has to be performed with 5 units consecutively. The free fall test shall be interrupted after 50, 100, 150 falls and terminated after 200 falls to verify, if full functionality of the device is still given. The number of falls passed by at least 3 out of 5 units is the value to be stated in user instructions as set out in Annex II.

ANNEX V

Product information sheet

Pursuant to point 1(b) of Article 3, the supplier shall enter into the product database the information as set out in Table 6.

The user manual or other literature provided with the product shall clearly indicate the link to the model in the product database as a human-readable Uniform Resource Locator (URL) or as QR code or by providing the product registration number.

Table 6: Product information sheet

Supplier's name or trade mark:	
Supplier's address[a]:	
Model identifier:	
General product parameters:	
Parameter	Value
Energy efficiency class	[A/B/C/D/E/F/G][b]
battery endurance per cycle (END_{device} [h])	x
battery endurance per cycle, talk time (END_{talk} [h])	x
battery endurance per cycle, webbrowsing (END_{web} [h])	x
battery endurance per cycle, video watching (END_{video} [h])	x
battery endurance per cycle, standby ($END_{standby}$ [h])	x
battery endurance per cycle, active use only ($END_{device,active}$ [h])	x
repeated free fall reliability class	[A/B/C/D/E/F/G][b]
shipped with protective cover	[yes/no]
repeated free fall reliability test – falls without defect, tested with protective cover [n]	[≥ xxx/n.a.]
repeated free fall reliability test – falls without defect, tested without protective cover [n]	[≥xxx/n.a.]
repeated free fall reliability test – falls without defect, tested in fully extended state [n]	[≥ xxx/n.a.]
battery endurance in cycles – default settings [cycles]	≥x00
battery endurance in cycles – fast charging [cycles]	≥x00
ingress protection rating	IPxx
additional ingress protection rating of dual coded devices	[IPxx/n.a.]

specified immersion depth in water, in case of IPx8 [m]		[x.x/n.a.]
screen scratch resistance on Mohs hardness scale		x
rated battery capacity (C_{rated} [mAh])		x.xxx
Minimum guaranteed availability of operating system updates[c] (until):		GG MM AAAA
Minimum guaranteed availability of spare parts[d] (until):		GG MM AAAA
External standardised suitable power supply	Required output voltage [V]	x,x
	Required delivered current [A]	x,x
	Connector type (at device)	[USB-A/USB-Micro B/USB-C/other]

Additional information:

Weblink to the manufacturer's website, where the information in point 2 of Annex II to Commission Regulation (EU) XXXX/XXX[4] *[OP – please insert the number of Ecodesign Regulation]*[a] is found:

[a] changes to these items shall not be considered relevant for the purposes of point 4 of Article 4 of Regulation (EU) 2017/1369.

[b] if the product database automatically generates the definitive content of this cell the supplier shall not enter these data.

[c] As from Annex II, point 1.2.6 of Commission Regulation (EU) xx/yy [Ecodesign smartphones].

[d] As from Annex II, point 1.1.2 of Commission Regulation (EU) xx/yy [Ecodesign smartphones]..

[4] Commission Regulation (EU) XXX/XXX *[OP – please insert the OJ-L reference of Regulation C(XXXX)XXXX]*.

ANNEX VI

Technical documentation

1. The technical documentation referred to in point 1(d) of Article 3 shall include:
   (a) a general description of the model allowing it to be unequivocally and easily identified;
   (b) references to the harmonised standards applied or other measurement standards used;
   (c) specific precautions to be taken when the model is assembled, installed, maintained or tested;
   (d) the values for the technical parameters set out in Table 7; these values are considered as the declared values for the purpose of the verification procedure in Annex IX;
   (e) the details and the results of calculations performed in accordance with Annex IV;
   (f) testing conditions if not described sufficiently in point (b), including battery charging algorithms for the default charging procedure and for the fast charging procedure, if applicable;

These elements shall also constitute the mandatory specific parts of the technical documentation that the supplier shall enter into the database, pursuant to point 5 of Article 12 of Regulation 2017/1369.

Table 7: Technical parameters of the model and their declared values

PARAMETER	UNIT	VALUE
battery endurance per cycle (END_{device})	[h]	x
battery endurance per cycle, talk time (END_{talk})	[h]	x
battery endurance per cycle, webbrowsing (END_{web})	[h]	x
battery endurance per cycle, video watching (END_{video})	[h]	x
battery endurance per cycle, standby ($END_{standby}$)	[h]	x
battery endurance per cycle, active use only ($END_{device,active}$)	[h]	x
shipped with protective cover	[yes/no]	-
repeated free fall reliability test – falls without defect, tested with protective cover	[n]	[≥ xxx/n.a.]
repeated free fall reliability test – falls without defect, tested without protective cover	[n]	[≥xxx/n.a.]
repeated free fall reliability test – falls without defect, tested in fully extended state	[n]	[≥ xxx/n.a.]
battery endurance in cycles – default settings	[cycles]	≥x00
battery endurance in cycles – fast charging	[cycles]	≥x00/n.a.

ingress protection rating		IPxx
additional ingress protection rating of dual coded devices		[IPxx/n.a.]
specified immersion depth in water, in case of IPx8		[x.x/n.a.]
screen scratch resistance	Mohs hardness scale	x
rated battery capacity (C_{rated})	[mAh]	x.xxx
specified final voltage for battery endurance in cycles test [V]	[V]	x.xx

2. Where the information included in the technical documentation for a particular photovoltaic module model has been obtained by any of the following methods, or both:

   – from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different supplier,

   – by calculation on the basis of design or extrapolation from another model of the same or a different supplier,

the technical documentation shall include the details of such calculation, the assessment undertaken by suppliers to verify the accuracy of the calculation and, where appropriate, the declaration of identity between the models of different suppliers.

ANNEX VII

Information to be provided in visual advertisements, in technical promotional material, in distance selling, except distance selling on the internet

1. In visual advertisements, for the purposes of ensuring conformity with the requirements laid down in point 1(e) of Article 3 and point 1(c) of Article 4, the energy efficiency class and the range of energy efficiency classes available on the label shall be shown as set out in point 4 of this Annex.

2. In technical promotional material, for the purposes of ensuring conformity with the requirements laid down in point 1(f) of Article 3 and point 1(d) of Article 4 the energy efficiency class and the range of energy efficiency classes available on the label shall be shown as set out in point 4 of this Annex.

3. Any paper-based distance selling must show the energy efficiency class and the range of energy efficiency classes available on the label as set out in point 4 of this Annex.

4. The energy efficiency class and the range of energy efficiency classes shall be shown, as indicated in Figure 2, with:

   (a) an arrow, containing the letter of the energy efficiency class in 100 % white, Calibri Bold and in a font size at least equivalent to that of the price, when the price is shown;

   (b) the colour of the arrow matching the colour of the energy efficiency class;

   (c) the range of available energy efficiency classes in 100 % black; and,

   (d) the size shall be such that the arrow is clearly visible and legible. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow, with a border of 0,5 pt in 100 % black placed around the arrow and the letter of the energy efficiency class.

   By way of derogation, if the visual advertisement, technical promotional material or paper-based distance selling is printed in monochrome, the arrow can be in monochrome in that visual advertisement, technical promotional material or paper-based distance selling.

Figure 2: Coloured/monochrome left/right arrow, with range of energy efficiency classes indicated

5. Telemarketing-based distance selling must specifically inform the customer of the energy efficiency class of the product and of the range of energy efficiency classes available on the label, and that the customer can access the full label and the product information sheet through a free access website, or by requesting a printed copy.

6. For all the situations mentioned in points 1 to 3 and 5, it must be possible for the customer to obtain, on request, a printed copy of the label and the product information sheet.

ANNEX VIII

Information to be provided in the case of distance selling through the Internet

1. The appropriate label made available by suppliers in accordance with point 1(g) of Article 3 shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the label is clearly visible and legible and shall be proportionate to the size specified in Annex III. The label may be displayed using a nested display, in which case the image used for accessing the label shall comply with the specifications laid down in point 2 of this Annex. If nested display is applied, the label shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the image.

2. The image used for accessing the label in the case of nested display, as indicated in Figure 2, shall:

   (a) be an arrow in the colour corresponding to the energy efficiency class of the product on the label;

   (b) indicate the energy efficiency class of the product on the arrow in 100 % white, Calibri Bold and in a font size equivalent to that of the price;

   (c) have the range of available energy efficiency classes in 100 % black; and,

   (d) have one of the following two formats, and its size shall be such that the arrow is clearly visible and legible. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow, with a visible border in 100 % black placed around the arrow and the letter of the energy efficiency class:

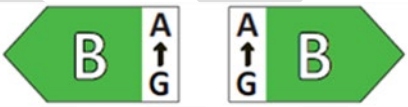


Figure 2: Coloured left/right arrow, with range of energy efficiency classes indicated

3. In the case of a nested display, the sequence of display of the label shall be as follows:

   (a) the image referred to in point 2 of this Annex shall be shown on the display mechanism in proximity to the price of the product;

   (b) the image shall link to the label set out in Annex III;

   (c) the label shall be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image;

   (d) the label shall be displayed by pop up, new tab, new page or inset screen display;

   (e) for magnification of the label on tactile screens, the device conventions for tactile magnification shall apply;

   (f) the label shall cease to be displayed by means of a close option or other standard closing mechanism;

   (g) the alternative text for the graphic, to be displayed on failure to display the label, shall be the energy efficiency class of the product in a font size equivalent to that of the price.

4. The electronic product information sheet made available by suppliers in accordance with point 1(h) of Article 3 shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the product information sheet is clearly visible and legible. The product information sheet may be displayed using a nested display or by referring to the product database, in which case the link used for accessing the product information sheet shall clearly and legibly indicate ‘Product information sheet’. If a nested display is used, the product information sheet shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the link.

ANNEX IX
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 supplier as an allowed tolerance to establish the values in the technical documentation or in interpreting these values with a view to achieving compliance or to communicate better performance by any means. The values and classes published on the label or in the product information sheet shall not be more favourable for the supplier than the values declared in the technical documentation.

Where a model has been designed to be able to detect it is being tested (e.g. by recognizing 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, the authorities of the Member States shall apply the following procedure:

(1) The Member State authorities shall verify one single unit of the model pursuant to points 2(a),(b) and (c), except for repeated free fall tests, where five units of a model shall be verified pursuant to points 2(a),(b) and (d), and except for battery endurance in cycles, where five units of a model shall be verified pursuant to points 2(a),(b) and (e).

(2) The model shall be considered to comply with the applicable requirements if:

(a) the values given in the technical documentation pursuant to Article 3(3) of Regulation (EU) 2017/1369 (declared values), and, where applicable, the values used to calculate these values, are not more favourable for the supplier than the corresponding values given in the test reports; and

(b) the values published on the label and in the product information sheet are not more favourable for the supplier than the declared values, and the indicated energy efficiency class and the repeated free fall reliability class are not more favourable for the supplier than the class determined by the declared values; and

(c) 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 given in Table 8.

(d) 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 these measurements) comply with the respective pass rate as given in Table 9.

(e) when the Member State authorities test the five units of the model, the arithmetic mean of 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 given in Table 8.

(3) If the results referred to in points 2(a), (b) and (e) 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(c) is not achieved, the Member State authorities shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more equivalent models.

(5) If the result referred to in point 2(d) is not achieved, the Member State authorities shall select ten additional units of the same model for testing. As an alternative, the ten 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 three units tested pursuant to point 4, where applicable, the arithmetic mean of the determined values complies with the respective tolerances given in Table 8.

(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 9.

(8) If the result referred to in points 5 and 6 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, 8 or the second paragraph of this Annex

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

The Member State authorities shall only apply the verification tolerances set out in Table 8 and the pass rate set out in Table 9 and shall only use the procedure set out in points 1 to 9 for the requirements referred to in this Annex. For the parameters in Table 8, no other tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied.

Table 8
Verification tolerances for measured parameters

Parameters	Verificationn
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 per cycle, active use only ($END_{device,active}$ [h])	The determined value[a] shall not be more than 1 hour 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.
battery endurance in cycles – fast charging [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 9
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 40 % of the tested devices.