Electronic Service Bulletin on 04/29/2022

NATIONAL TELECOMMUNICATIONS AGENCY

ACT NO. 5159, OF APRIL 8, 2022

THE SUPERINTENDENT OF GRANTING AND RESOURCES TO DELIVERY - ANATEL, in the use of the powers conferred on him by Ordinance No. 419, of May 24, 2013, and

CONSIDERING the competence given by Items XIII and XIV of Art. 19 of Law No. 9,472/97 – General Telecommunications Law;

WHEREAS the Technical Requirements establish the parameters and technical criteria verified in the Conformity Assessment of one or more types of telecommunications product, pursuant to art. 22 of the Regulation for Conformity Assessment and Approval of Telecommunications Products, approved by Resolution No. 715, of October 23, 2019;

CONSIDERING that contained in the case file No. 53500.027683/2020-20 ;

R E S O L V E S :

Art. 1st Approve the Technical Requirements and Test Procedures for Assessing the Conformity of Chargers Used in Cellular Mobile Phones, as attached to this Act.

Art. 2 To revoke Act No. 3481, of May 31, 2019 , after the deadline established in Article 3.

Art. 3 This Act enters into force 180 (one hundred and eighty) days after its publication in Anatel's Electronic Service Bulletin.

Document signed electronically by **Tawfic Awwad Júnior** , **Superintendent of Granting and Recourses to Provision, Substitute** , on 04/27/2022, at 5:35 pm, according to Brasília official time, based on art. 23, item II, of Anatel Ordinance No. 912/2017 .

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ANNEX TO ACT NO. 5159, OF APRIL 8, 2022

TECHNICAL REQUIREMENTS AND TEST PROCEDURES FOR ASSESSMENT OF CONFORMITY OF CHARGER USED IN MOBILE MOBILE PHONE

1. GOAL

1.1. Establish the minimum requirements to be demonstrated in the assessment of conformity and approval, with the National Telecommunications Agency, of charger used in mobile cell phones.

2. COVERAGE

2.1. The requirements defined in this document are applicable to the following mobile phone chargers:

a) portable chargers whose electrical supply is the alternating current electrical power network (Ex.: residential charger).

b) portable chargers whose electrical supply is a source of direct current (Ex.: car charger).

c) inductive chargers, regardless of the type of electrical power supply (alternating current or direct current).

d) purpose-built USB interfaces (ports) for powering electronic devices without data transmission functionality, regardless of the type of power supply.

2.2. USB interfaces that integrate the electrical/electronic design of an equipment (eg TV, computer, multimedia center, etc.) are not covered by these requirements.

3. REFERENCES

3.1. The following references are used in this document:

3.1.1. Law No. 9,472 , of July 16, 1997 - General Telecommunications Law - LGT;

3.1.2. Standard N-02/92 - Basic standard for electromagnetic disturbances produced by industrial, scientific and medical equipment (ISM equipment), approved by Ordinance No. 176, of June 10, 1992.

3.1.3. Anatel's internal regulations, approved by Resolution No. 612 , of April 29, 2013;

3.1.4. Regulation for conformity assessment and approval of telecommunications products, approved by Resolution No. 715 , of October 23, 2019;

3.1.5. Technical electrical safety requirements for conformity assessment of telecommunication products, approved by Act No. 950 , of February 8, 2018;

3.1.6. Technical requirements of electromagnetic compatibility for the conformity assessment of telecommunication products, approved by Act No. 1120, of February 19, 2018 .

3.1.7. ISO 10605/2008: *Road vehicles – Test methods for electrical disturbances from electrostatic discharge* .

3.1.8. ISO 7637-2/2004: *Road vehicles – Electrical disturbances from conduction and coupling - part 2: electrical transient conduction along supply lines or only* .

3.1.9. *Code of Federal Regulations* – CFR FCC *part* 18 — *Industrial, scientific, and medical equipment* .

3.1.10. ABNT NBR NM 60884-1/2010: Plugs and sockets for domestic and similar use - Part 1: General requirements

3.1.11. ABNT NBR 14136/2012: Plugs and sockets for domestic and similar use up to 20 A/250 V in alternating current — Standardization

4. DEFINITIONS

4.1. Charger used in cell phone: equipment used to charge cell phone batteries. Cables or other equipment that do not convert/adapt electrical energy are not covered by this definition.

4.2. Inductive charger: system composed of a magnetic field generating coil that, when coupled to the device to be charged, performs electrical energy transfer by means of induction or magnetic resonance or by capacitive coupling; also known as WPT (*Wireless Power Transmission*) *charger* .

4.3. Charger used in a vehicular environment: it is the one used in vehicles whose power supply is of the continuous type (DC) such as, for example, 12 V or 24 V. It can be built into the vehicle structure (Ex.: inductive or USB interface) or portable (removable).

5. GUIDELINES

5.1. Unless otherwise stated, chargers for mobile phones must be tested in conjunction with a mobile mobile phone during the assessment of the electromagnetic compatibility and electrical safety requirements of the product.

5.1.1. The charger manufacturer must provide a cell phone with its battery initially discharged for testing.

6. TECHNICAL REQUIREMENTS FOR CHARGERS USED IN VEHICLE ENVIRONMENTS

6.1. Criteria for evaluating Electromagnetic Compatibility (EMC) requirements

6.1.1. Requirement of immunity to electrostatic discharges: the tests must be carried out in accordance with the procedures contained in the ISO 10605/2008 standard: *Road Vehicles – Test methods for electrical disturbances from electrostatic d ischarge* .

6.1.1.1. Only carry out the direct discharge test (item 8.3 of the ISO 10605/2008 standard).

6.1.1.2. Electrostatic discharges must be applied at the following levels:

a) 2kV, 4kV and 6kV for contact discharges; and

b) 4 kV, 6 kV and 8 kV for air discharges.

6.1.1.3. For evaluation of the charger, the criterion C defined in the technical requirements of electromagnetic compatibility for evaluation of the conformity of products for telecommunications published by Anatel must be adopted.

6.1.2. Requirement of immunity to surges and transients: the tests must be carried out according to the procedures contained in the ISO 7637-2/2004 standard: *Road vehicles – Electrical disturbances from conduction and coupling - part 2: electrical transient conduction along supply lines or only* .

6.1.2.1. Pulses 2a, 2b, 3a and 3b must be adopted with severity level 3 defined in Tables A.1 and A.2 of the ISO 7637-2/2004 standard, according to the supply voltage supported by the charger.

6.1.2.2. For evaluation of the charger, criterion B defined in the technical requirements of electromagnetic compatibility for evaluation of the conformity of products for telecommunications published by Anatel must be adopted, observing the behavior of the charging process of the cellular mobile phone used in the tests.

6.2. **Criteria for assessing Electrical Safety requirements**

6.2.1. Test applicable only to portable vehicle chargers. Not applicable to those built into the vehicle.

6.2.2. Overheat Protection Requirement: As stated in the Electrical Safety Technical Requirements for Conformity Assessment of Telecommunications Products. In the test, the charger must not exceed the temperature rise limits prescribed in the current requirements.

6.2.3. To carry out the tests, as an alternative to using a cell phone coupled to the charger, a resistive load may be used that simulates the conditions of greater current drain during charging, as specified by the charger manufacturer.

7. TECHNICAL REQUIREMENTS FOR OTHER CHARGERS

7.1. **Criteria for evaluating Electromagnetic Compatibility (EMC) requirements**

7.1.1. Emission requirements of electromagnetic disturbances, as established in the technical requirements of electromagnetic compatibility for conformity assessment of telecommunication products published by Anatel.

7.1.1.1. Fully apply, with the exception of, exclusively for inductive type chargers, the radiated emissions test from the equipment.

7.1.1.2. To carry out the tests, alternatively to the use of a cell phone connected to the charger, a resistive load can be used in parallel with a 1uF capacitor. The resistive load must simulate the conditions of greatest current draw during charging, as specified by the charger manufacturer.

7.1.2. Requirements for immunity to electromagnetic disturbances, as established in the technical requirements of electromagnetic compatibility for conformity assessment of telecommunication products published by Anatel.

7.1.2.1. Apply requirements in full, with the exception of the immunity test to radiated radiofrequency disturbances and the test of immunity to variation and interruption of the electrical network.

7.1.2.2. During the execution of the tests of immunity to electromagnetic disturbances, the charger must present its normal operating conditions, evaluated through the process of charging the cell phone used in the tests.

7.1.3. Resistivity requirements to electromagnetic disturbances, as established in the technical requirements of electromagnetic compatibility for conformity assessment of telecommunication products published by Anatel.

7.1.3.1. Only apply the electromagnetic disturbance test on the external electrical power ports. In this test, the charger must provide electrical insulation so as not to be damaged and not allow damage to the phone.

7.2. **Criteria for assessing Electrical Safety requirements**

7.2.1. Fully apply the following tests of the electrical safety technical requirements for conformity assessment of telecommunication products published by Anatel:

7.2.1.1. Protection against overheating. In the test, the charger must not exceed the temperature rise limits prescribed in the current requirements;

7.2.1.2. Protection against electric shock under normal conditions;

7.2.1.3. Protection against electric shock in overvoltage condition at the external electrical power port.

7.2.2. In tests for protection against electric shock, the charger must not allow current to flow to the phone in order to avoid damage to the device.

7.2.3. To perform the overheating test, as an alternative to using a cell phone connected to the charger, a resistive load may be used that simulates the conditions of greater current drain during charging, as specified by the charger manufacturer.

7.2.4. Apply the following tests referring to the evaluation of the charger plug used in a cell phone:

7.2.4.1. Verification of dimensions, according to item 9 of document 3.1.10 and Annex A of document 3.1.11;

7.2.4.2. Verification of normal operation for chargers with non-solid pins, according to item 21 of document 3.1.10;

7.2.4.3. Verification of mechanical strength, according to items 24.2, 24.4, 24.5 and 24.10 of document 3.1.10;

7.2.4.4. Supplementary checks for chargers with pins provided with insulating gloves, according to item 24.7 and 30.1 of document 3.1.10.

7.2.5. Chargers used in cell phones must meet the marking requirements established in the electrical safety requirements for conformity assessment of telecommunication products published by Anatel.

8. SPECIFIC REQUIREMENTS FOR INDUCTIVE CHARGER

8.1. In addition to meeting the electromagnetic compatibility and electrical safety requirements for their type of application (vehicular environment or other chargers), inductive chargers must meet the following requirements:

8.1.1. Field strength requirements: paragraph 18.305 - *Field strength limits (equipment any type, operating frequency: any non-ISM frequency), subpart C - technical standards* of the document *code of federal regulations* - CFR FCC *part* 18 — *industrial, scientific, and medical equipment,* applying the test methods established in the test procedures for conformity assessment of radiocommunication equipment with restricted radiation established by Anatel.

8.1.2. Fundamental frequency of the equipment: it must not be in one of the prohibited frequencies, according to Table 2 of the Basic Norm of electromagnetic disturbances produced by industrial, scientific and medical equipment (ISM equipment).

9. APPROVAL IDENTIFICATION

9.1. The charger used in a cellular mobile phone distributed in the national market must bear the approval security seal affixed to its body, whose specifications are contained in a specific operational procedure for this purpose, published by Anatel.

9.1.1. The Security seal described in the caput is optional for the built-in vehicle chargers supplied with the vehicle. However, the equipment must bear the identification of Anatel homologation in one of the forms provided for in the Operating Procedure for Marking the Identification of Anatel Homologation in Telecommunications Products.

9.1.2. At Anatel's discretion, chargers with constructive characteristics that do not allow the affixing of the approval security seal to their body, may have the seal affixed in their manual.

9.1.3. Regardless of its classification (type of product for telecommunications), if the product has been evaluated according to the requirements and test procedures for evaluating the conformity of chargers used in Cellular Mobile Phones, even if this is not the main function of the equipment, it must bear the approval security seal.

9.1.3.1. Exclusively for cellular mobile phones, there is no need to affix the security seal when the equipment has an induction charger function.

10. FINAL DISPOSITIONS

10.1. Chargers incorporating modules classified as restricted radiation radiocommunications equipment must also demonstrate compliance with the requirements applicable to these modules.

10.2. Chargers that have the same housing, the same circuit board, the same interconnection diagram, the same printed circuit layout and internal hardware may be covered by the same conformity assessment process, due to similarity with the model submitted to the tests.

10.2.1. If the charger has a casing different from the one already evaluated, additional tests referring to item 7.2.4 must be carried out.

10.3. The document resulting from the conformity assessment must present the maximum voltage and current values applied to the input and output of the charger, specified by the manufacturer and used in its conformity assessment.

10.4. In order to prove compliance with the requirements for immunity to transients and immunity to electrostatic discharges, exclusively for vehicle chargers of the USB interface type built into the dashboard or elsewhere in the vehicle, test reports issued by a first or second party laboratory will be accepted alternatively. accredited or evaluated by an OCD to carry out tests in accordance with the requirements defined by Anatel. The test report, which must be analyzed by the OCD, must contain specific tests to evaluate the charger and not the vehicle's electrical system as a whole.