Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

**Requirements and Testing Instructions regarding the Disclosure Requirement for Electroimpulse Devices (wireless devices)**

Contents



## 1. Electroimpulse devices

Electroimpulse devices are objects under weapons law which are - according to regulations - suited to cause injuries or pain, making use of an energy other than mechanical energy.

As to their purpose, electroimpulse devices can be used for defence against aggressive people or animals. The effectiveness of these devices is based on the discharge of stored energy which is released by a tripping mechanism.

| 2. Regulations | Essential contents |
|---|---|
| Waffengesetz (WaffG, Weapons Law) | Classification of the electroimpulse devices |
| Beschussgesetz (BeschG, German law) | Obligations of the manufacturer/ marketer, in the following referred to as "the applicant", authorities of PTB |
| Beschussverordnung (BeschussV, German ordinance) | Responsibility of PTB, requirements and limiting values for electroimpulse devices, monitoring measures by PTB |
| DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 | Electromagnetic compatibility |
| DIRECTIVE 2001/95/EC OF THE EUROPEAN PARLIAMENTS AND OF THE COUNCIL of 3 December 2001 | General product safety |



Hausadresse, Lieferanschrift:
Bundesallee 100
38116 Braunschweig
DEUTSCHLAND

Telefon: +49 531 592-0
Telefax: +49 531 592-9292
E-Mail: poststelle@ptb.de
Internet: http://www.ptb.de

*Achtung – neue Bankverbindung ab 25. März 2011:*
Deutsche Bundesbank, Filiale Leipzig
Kto.-Nr.: 860 010 40 BLZ 860 000 00
IBAN: DE38 8600 0000 0086 0010 40
BIC: MARKDEF1860, VAT-Nr.: DE 811 240 952

PTB Berlin-Charlottenburg
Abbestr. 2-12
10587 Berlin
DEUTSCHLAND

## 3. Certificate / supplements / revocation / costs / publication

The Physikalisch-Technische Bundesanstalt is responsible for all tests in accordance with the Proof Testing Act which are associated with the granting of the test mark for electroimpulse devices.
Other technical institutes, whose results are included in the decision of PTB can - in the individual case - be commissioned by PTB to perform partial tests.

After the requirements have been checked, the test mark (see point 5) is granted and a certificate is issued in which the receipt of the notification in accordance with section (2) BeschG is confirmed and statements on the electroimplulse device submitted are made which are relevant to the Proof Testing Act. This certification is an administrative act within the meaning of section 35 of the Administrative Procedures Act (VwVfG).

PTB can limit the validity of the certificate to allow for possible changes regarding the state of the art of the device category and the requirements for this Testing Instruction. The applicant must keep a list which shows the manufactured serial numbers and the name of the sub-distributor.

PTB is authorized to convince itself - by tests of its own or of other technical institutes - of the correctness of the information given by the manufacturer. For implementation of the requirements for electroimpulse devices, PTB can, in addition, demand actions required in accordance with section 9 (4) BeschG to be taken by the the applicant to avoid that electroimpulse devices are put on the market which do not comply with the regulations.

In the case of a limitation of the certificate, a **supplementing application** (see Annex II) is to be submitted to PTB in good time, i.e. before the duration expires. The above-mentioned list (serial number and sub-distributer) is to be enclosed with the application.

The certificate in accordance with section 9 (2) BeschG can be withdrawn or **revoked** by PTB in accordance with the regulations of the VwVfG.

The **costs** of the certificate are charged in accordance with the official regulations governing charges for services provided under Weapons Law (WaffKostVO). The costs for external tests are at the expense of the applicant.

The granted test marks, the holder of the certificate and the device type are **published** by PTB in accordance with section 20 (4) BeschG.

## 4. Documents and test samples to be submitted

- Written notification (in German) of the applicant, cf. form (Annex IV): Application for the issuing of a test mark for electroimpulse devices,
- Type designation/s of the device/s applied for, signature and firm's stamp of the applicant,
- Circuit diagram of the electronic circuit with parts list and description of the function,
- Signed manufacturer declarations (see Annexes I and III), where appropriate also manufacturer declarations in accordance with Annex II,
- Proof of performance of the following tests:



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| | |
|---|---|
| DIN EN 61000-4-3 | Electromagnetic compatibility test [1] severity level 3 |
| DIN EN 61000-6-3 | Requirements for the emission of electromagnetic interferences (emission) [1] cf. table 1 |
| DIN EN 60068-2-27 | Impact test of the housing [1] $g_n = 50$ |
| DIN EN 60068-2-6 | Vibration test [1]<br>f =10 Hz to 150 Hz, acceleration = 10 m/s$^2$, number of frequency cycles per axis: 20 |
| DIN EN ISO 75 -2 | Dimensional stability of plastics under heat[1]<br>$T_{max} = 80°C$ |

[1] Proof by a laboratory accredited in accordance with DIN EN 17025, with the logo of the accreditation body

Table 1:

| Section of the standard | Frequency in MHz | Emission level in dB($\mu$V/m) | Distance EUT – receiver in m |
|---|---|---|---|
| 1.2 | 30 – 230<br>230 - 1000 | 35<br>42 | 3<br>3 |
| 1.3 | 30 – 230<br>230 - 1000 | 35 – 25<br>32 | 10<br>10 |

- Operating instructions (in German) must be enclosed with every device type
- At least two test samples of every type (PTB reserves itself the right to archive these types as storage samples),
- PTB must be informed without delay, in writing and in connection with Annex II, about any amendments made on electroimpulse devices for which an application has already been filed,
- Two devices from the current manufacture are to be submitted to PTB two months before the validity of the certificate expires at the latest.

## 5. Design requirements

Electroimpulse devices must be designed and constructed in such a way that the operator's safety is never put at risk.
Prerequisites are:

- A break-proof housing, resistance against mechanical load (e.g. impact, vibration),
- temperature stability of the housing up to +80 °C, safe-grip housing and contours without sharp edges,
- the function of the electroimpulse device must be such that the discharge time stated in point 7 is automatically followed by a time without impulse (idle time) of at least 2 s. Another discharge process is started after the end of the idle time by releasing and actuating the release button again. The applicant must provide the auxiliary devices required to check the prescribed idle time (2 s).



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## 6. Inscriptions, designations and markings

The device must be marked unequivocally and permanently. This comprises the unchangeable application of the:

- model designation,
- serial number,
- unequivocal marking of the functional state of keys and buttons,
- CE marking,
- The test mark in accordance with section 15 (5) BeschussV 

- The symbol for reading of the operating instructions 

## 7. Tests / revisions

The metrological test is performed on at least two electroimpulse devices of one type. The body resistance of an aggressive person is simulated with 1000 Ω.

The test circuit shown below is used to check the defined limiting values (see table).

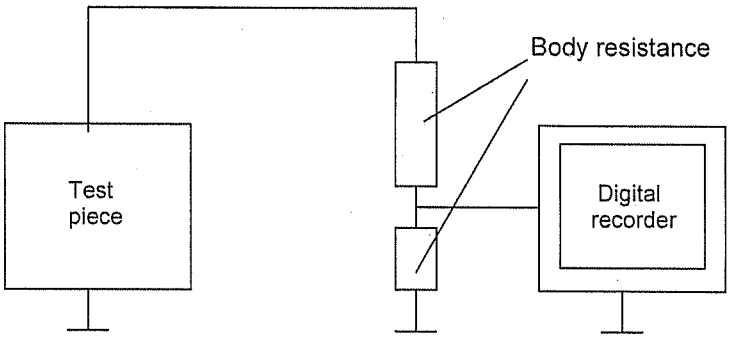


Table:

| | Discharge time 4 s | Discharge time 10 s | Discharge time 100 s |
|---|---|---|---|
| $I_{eff}$ in mA | ≤ 500 | ≤ 300 | ≤ 50 |
| Impulse duration in ms | ≤ 0.1 | ≤ 0.1 | ≤ 0.1 |
| Impulse frequency in Hz | ≤ 50 | ≤ 50 | ≤ 50 |
| Spec. energy in $A^2s$ | 5*10-3 | 5*10-3 | 5*10-3 |



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## 8. Annexes

- **Annex I:**
  Declaration of the applicant confirming compliance with the EC Directives (CE marking) and with the test records of the laboratory which has been accredited for these measurements in accordance with EN 17025. In the case of laboratories outside Europe, an additional in-situ check by an accreditation body is required.

- **Annex II:**
  Declaration of the applicant regarding supplements or amendments of the certificate.

  ***Note:***
  PTB reserves itself the right to carry out - or to have carried out - additional tests in case of need.

- **Annex III:**
  Declaration and proof of the applicant that these devices do not have a mortal effect.

- **Annex IV** (only in German language)**:**
  Form: Application for the granting of a test mark for electroimpulse devices



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