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PUBLIC SECURITY STANDARD OF
THE PEOPLE'S REPUBLIC OF CHINA

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Replacing GA 36-2014

**License plates of motor vehicles
of the People's Republic of China**

中华人民共和国机动车号牌

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License plates of motor vehicles of the People's Republic of China

1 Scope

This standard specifies the classification, specifications, color, scope of application, pattern, technical requirements, test methods, inspection rules, packaging, replacement, enlarged license plate, supervision and management of license plates of motor vehicles.

This standard is applicable to the production, inspection, issuance, supervision and management of license plates of motor vehicles as issued by the traffic management department of the public security organ.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 191 Packaging - Pictorial marking for handling of goods

GB 1589 Limits of dimensions, axle load and masses for road vehicles, trailers, combination vehicles

GB/T 2260 Codes for the administrative divisions of the Peoples Republic of China

GB/T 3181 Color standard for paint film

GB/T 3681 Plastics - Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors

GB/T 3880.1 Wrought aluminum and aluminum alloy plates, sheets and strips for general engineering - Part 1: Technical conditions of delivery

GB/T 3880.2 Wrought aluminum and aluminum alloy plates, sheets and strips for general engineering - Part 2: Mechanical properties

GB/T 3978 Standard illuminants and geometric conditions

GB/T 3979 Methods for the measurement of object color

GB/T 9286 Paints and varnishes - Cross cut test for films

GB/T 16865 Test pieces and method for tensile test for wrought aluminum and magnesium alloys products

GB/T 18284 QR code

GB/T 20197 Define, classify, marking and degradability requirement of degradable plastic

CY/T 3 Color assessment lighting and observation condition

GA 666 Reflective film for the license plate of motorcycle

GA 802 Types of motor vehicle - Terms and definitions

GA 804 License plate of motor vehicle special sealing device

NY 345.1 Tractor number plate

QB/T 1012 Offset paper

Notice on carrying out the work of replacing the diplomatic vehicles of diplomatic corps in China (WF [2017] No.10)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

License plate of motor vehicle

A statutory sign that permits a motor vehicle to travel on a road within the territory of the People's Republic of China, the number of which is the motor vehicle's registration number.

3.2

Registration number of motor vehicle

The number assigned to the motor vehicle according to the rules when handling the motor vehicle registration business. The motor vehicle's registration number includes: the abbreviation of the province, autonomous region, municipality directly under the central government represented by Chinese characters, the licensing authority's code represented by English

5.10 Chinese characters used for the abbreviation of dedicated license plate

The abbreviations for Chinese characters used in the registration numbers of various motor vehicles of dedicated license plates are as follows:

- a) The license plate of the consular vehicle and the license plate of the consular motorcycle use the Chinese character “Consulate”;
- b) The license plate of the embassy vehicle and the license plate of the embassy motorcycle use the Chinese character “Embassy”;
- c) The license plate of the police vehicle and the license plate of the police motorcycle use the Chinese character “Police”;
- d) The license plate of the training vehicle and the license plate of the training motorcycle use the Chinese character “Training”;
- e) The license plate of the trailer uses the Chinese character “Trailer”;
- f) The license plate of the Hong Kong Special Administrative Region’s vehicle entry-exit the Mainland is “Hong Kong”;
- g) The license plate of the Macao Special Administrative Region’s vehicle entry-exit the Mainland is “Macao”;
- h) The temporary driving license plate of the trial vehicle is “Trial”;
- i) The temporary driving license plate of the special type vehicle is “Special”.

5.11 Blank character

The blank character effectively separates the registration number of motor vehicle. The blank character is stamped in the same way as the serial number, the color is the same as that of the serial number.

5.12 Pattern effect of license plate

The rendering of the pattern of license plate is as shown in Appendix B.

6 Technical requirements

6.1 Materials

6.1.1 Substrate

6.1.1.1 Metal materials

well as the letters of the licensing authority shall be surrounded by the secret marks which represent the manufacturing organization of license plate. The secret marks are formed by stamping. The location shall be consistent with the pattern.

6.2.2 Paper license plate

There shall be a unified secret mark on the front side of the license plate, the position and pattern of the secret mark shall be consistent. The back side of the license plate shall have a miniature text consisting of the English letter "LSXSC".

6.3 Production sequence markings of metal license plate

6.3.1 Basic requirements

The metal license plate shall have a unique production sequence marking on each side. Except that the marking for the license plate of the Hong Kong & Macao entry-exit vehicles, the license plate of the embassy vehicle, the license plate of consular vehicle, the license plate of the embassy motorcycle, the license plate of the consular motorcycle is one the back side, the marking for the other license plate is on the front side. The production sequence marking shall be legible.

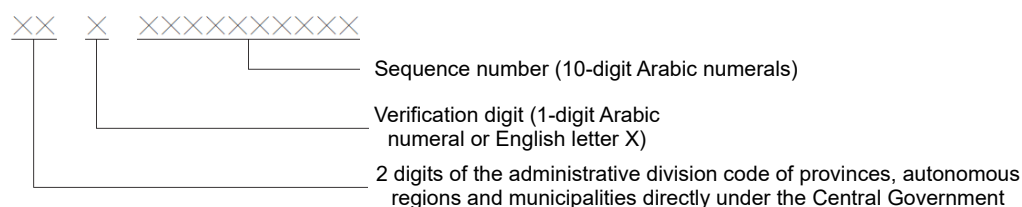
6.3.2 Content

6.3.2.1 Composition

The production sequence marking consists of a production serial number, a check code, a two-dimensional barcode.

6.3.2.2 Production serial number

6.3.2.2.1 The production serial number consists of 13 digits: 2 digits of the administrative division code of provinces, autonomous regions and municipalities directly under the Central Government, 1 digit of check code, 10 digits of sequence number, that is:



6.3.2.2.2 The administrative division codes of provinces, autonomous regions and municipalities directly under the Central Government shall comply with the provisions of GB/T 2260.

6.3.2.2.3 The arrangement of the 10-digit sequence number is from

6.6.2 Paper license plate

The appearance requirements of the paper license plate are as follows:

- a) The background color of the license plates of temporary entry vehicles and the license plates of temporary entry motorcycle which drive within the region uses the sky blue (PB09) in GB/T 3181;
- b) The background color of the license plates of temporary entry vehicle and the license plates of temporary entry motorcycle which drive across the region uses the brownish yellow color (YR06) in GB/T 3181;
- c) The background color of the license plates of temporary driving vehicles which drive across the administrative regions uses the sky blue (PB09) in GB/T 3181;
- d) The background color of the license plate of temporary driving vehicles for trial purposes as well as the license plate of temporary driving special motor vehicle which drive across the administrative jurisdiction uses the brownish yellow (YR06) in GB/T 3181;
- e) The layout is clean, the text and shade are clear and complete, there is no marks, no paste, no shortage of calligraphy;
- f) The production sequence markings shall be clear and complete.

6.7 Size

6.7.1 Profile size

The profile size of the license plate shall comply with the requirements of the specifications in clause 5. The error of the profile size of the license plate of 88 mm x 60 mm is ± 0.5 mm. The error of the profile size of the license plates of other specifications is $\pm 0.5\%$.

6.7.2 Character's size

The size of the license plate's character shall comply with the specifications of clause 5, the error is $\pm 1\%$.

6.7.3 Stamping size

The periphery of the metal license plate shall have ribs which have a convex value of not less than 1 mm. The characters and blank characters shall project from the license plate of not less than 1 mm. The ribs, characters, blank characters of the license plates of large-and-medium new energy vehicles and the license plates of small new energy vehicles shall project from the license plate of not less than 1.2 mm. The edges of the character and rib shall be neat.

6.8 Retroreflective performance

The value of the retroreflection coefficient of the reflective surface of the metal license plate shall comply with the provisions of GA 666.

6.9 Chroma performance

6.9.1 Paint film's color

The color of the red paint film used for the metal license plate shall be the bright red color (R03) in GB/T 3181.

6.9.2 Reflective surface's color

6.9.2.1 Retroreflective color

The retroreflective color of the reflective surface of the metal license plate shall comply with the provisions of GA 666.

6.9.2.2 Surface color

The surface color of the reflective surface of the metal license plate shall comply with the provisions of GA 666.

6.10 Temperature resistance

The metal license plate shall have no cracking, peeling, chipping or warping in the environment of -40 °C ~ 60 °C.

6.11 Bending resistance

When the metal license plate is bent by external force, the surface of the license plate shall not have any damage such as cracking, peeling, interlaminar separation.

6.12 Impact resistance

When the metal license plate is impacted by external force, there shall be no crack or interlaminar separation beyond the circular zone which uses the impacted point as the center and the radius of 6 mm at the surface of the impact surface.

6.13 Solvent resistance

The metal license plate shall be capable of withstanding the etching of the solvent and shall have no signs of color fading, color changing, discoloration, softening, wrinkles, blistering, cracking, delamination, curling or dissolution at surface.

- c) The license plate of temporary driving vehicle can be completely stripped from the automobile-grade float glass by hand, there is no residual glue on the glass.

6.17 Blown-sand resistance

The metal license plate shall be able to withstand the blown sand. After being tested according to the method as specified in 7.16, the surface shall be free from damage, dent, peeling off, color fading.

7 Test methods

7.1 Testing of materials

7.1.1 Aluminum material

7.1.1.1 Test the general requirements for testing aluminum materials in accordance with the requirements of GB/T 3880.1.

7.1.1.2 Test the mechanical properties of aluminum materials according to the requirements of GB/T 16865.

7.1.1.3 Use a thickness gauge which has an accuracy of 1 μm to test the thickness of the oxide or resin coating of the aluminum material.

7.1.1.4 Use a Vernier caliper to test the thickness of the aluminum material.

7.1.2 Special watermark paper

Use the viewer to check the watermark.

7.1.3 Offset printing paper

Follow the requirements of QB/T 1012 for testing and quantitation.

7.1.4 Reflective film

In the daytime environment with an illuminance greater than 150 lx, visually check the abbreviations of Chinese characters of provinces, autonomous regions, municipalities directly under the Central Government or the dedicated markings for new energy vehicles.

7.2 Inspection of character and secret mark

7.2.1 Characters

In a daytime environment with an illuminance greater than 150 lx, collect the character image on the front side of the license plate, carry out superimposed

7.6 Testing of size

7.6.1 Profile size

Use the length measurement tool to measure the profile size of the license plate.

7.6.2 Character's size

Use the length measurement tool to measure the character's size of the license plate.

7.6.3 Stamping size

Use the length measurement tool to measure the stamping size of the license plate.

7.7 Test of retroreflective performance

Test device and methods are as specified in GA 666. When testing the retroreflective coefficient of a color on a license plate, use a low-reflectance black material to shade other color parts.

7.8 Test of chroma performance

7.8.1 Paint film's color

According to the requirements of GB/T 3181, use colorimetry to carry out test.

7.8.2 Retroreflective color

Use the standard illuminant A light source (color temperature 2856 K) as specified in GB/T 3978, at an observation angle of 0.2° and an incident angle of 0° . When testing a certain color on the license plate, use black material with low-reflectance to shade other color parts, use the method as specified in GB/T 3979 to measure the chromaticity coordinates.

7.8.3 Surface color

Use the standard illumination D65 light source (color temperature 6500 K) as specified in GB/T 3978, at a field angle of 2° and the geometric condition of 45/0. When testing a certain color on the license plate, it shall use the black material with low-reflectance to shade other color parts. Follow the method as specified in GB/T 3979, test the L^* , a^* , b^* of each color.

7.9 Temperature resistance test

Put the license plate into the test chamber, then gradually increase the temperature of the test chamber to $60^\circ\text{C} \pm 2^\circ\text{C}$, keep the license plate at this temperature for 7 hours; after completion, remove the license plate and leave it

the exposure frame at least 1 m above the ground. The license plate faces the south, at an angle to the horizontal plane of 45°. The surface of the license plate shall not be blocked by other objects from sunlight. There shall be no accumulated water. The exposure location shall be as close as possible to the actual use environment or the most severe place of a certain climate type.

After the license plate begins to be exposed to the sun, make surface inspection once a month. After one year, make inspection once every 3 months, until it is finished. After the natural exposure test is completed, carry out inspection and record the test results.

7.14.4 Artificial climate accelerated-aging test

Select metal license plates of different colors, to make a 140 mm x 70 mm specimen which contains characters, put it into the aging chamber. The aging chamber uses a xenon lamp as the light source, the front side of the specimen is irradiated by light at a wavelength of 290 nm ~ 800 nm. The radiation intensity is 550 W/m². Within the overall area of the specimen, the deviation of the radiation intensity shall not exceed 10%. During the test, use the continuous illumination, the blackboard's temperature is 65 °C ± 3 °C, the relative humidity when the water is not sprayed is 65% ± 5%, the water spray period is 18 min / 102 min (water-spray time / non-water-spray time). After finishing the test, use the 5% diluted hydrochloric acid solution to rinse the surface for 45 s, then use water to rinse it thoroughly, use a clean soft cloth to wipe it dry, finally carry out inspection and record the test results.

7.15 Adhesion test

7.15.1 Adhesion of reflective film

Place the metal license plate in a low-temperature chamber at -20 °C for 1 h, then take out the specimen, immediately peel off the reflective film from the bonded bottom plate by hand, check and record the test results; if it can be peeled off manually, fix the license plate, apply a tensile force of 30 N on the peeling reflective film's end, to check whether the reflective film can be pulled off at a uniform speed.

7.15.2 Adhesion of ink or hot-stamping film

For the test device and test method, it shall follow the provisions of GB/T 9286 to select the single-edge cutting tool at a cutting distance of 2 mm. Use the background color portion as the testing surface for the white license plate; use the coloring part of the character as the testing surface of the black-character license plate.

7.15.3 Adhesion of license plate of temporary driving vehicles

When the exit-factory inspection fails, the unqualified batches shall be subjected to 100% repeated exit-factory inspection. The products which pass the re-inspection can be exit-factory. For the unqualified products, it shall register the unqualified products in the information management system of the license plate of motor vehicles, dispose the unqualified products.

8.4 Supervisory inspection

8.4.1 Metal license plate

After the normal production of the metal license plate or the semi-finished license plate, the inspection shall be carried out once every 2 years in case of continuous production. The inspection items shall include all other inspection items than the weathering resistance test. The inspection shall be carried out once every 4 years in case of continuous production according to all the type inspection items.

8.4.2 Paper license plate

After the normal production of the paper license plate, the inspection shall be carried out semi-annually. The inspection items shall include all type inspection items.

9 Marking, packaging, transport, storage

9.1 Requirements for markings

The markings shall satisfy:

- a) Each package of the license plate shall be identified of the license plate's type, quantity, range of registration number of motor vehicle, code of licensing authority, package's profile size, total mass, name of production organization, address and date of exit-factory;
- b) Each package of semi-finished products shall be identified of the type and quantity of semi-finished products, the range of production serial numbers, the profile size of the package, the total mass, the name of production organization, address and date of exit-factory;
- c) The marking on the packaging box shall comply with the provisions of GB/T 191.

9.2 Packaging requirements

9.2.1 Semi-finished products

Packaging shall meet:

coverage, it is laterally horizontal, longitudinally perpendicular to the ground, the longitudinally included angle is not more than 15° (the longitudinally included angle of the license plate of motorcycle is inclined upwards for not more than 30°);

- d) The mounting holes shall all be fitted with a sealing device that meets the requirements of GA 804, unless otherwise the installation cannot be carried out due to the restrictions of vehicle;
- e) When the license plate frame is used to support installation, the edge of the inner side of the license plate frame is more than 5 mm apart from the edge of the character of the registration number of motor vehicle, it shall not cover the production sequence marking;
- f) There shall be no other light source around the license plate that affects the identification of the license plate.

10.2 Paper license plate

The installation requirements for the paper license plate are as follows:

- a) The license plate of temporary entry vehicle shall be placed on the right side of the front windshield inside the vehicle. The license plate of the temporary entry motorcycle shall be carried with the vehicle;
- b) The license plate of the temporary driving vehicle shall be pasted in the lower left corner or lower right corner of the front windshield in the vehicle, at a position where the driver's line of sight shall not be affected. The other piece of the passenger vehicle shall be attached to the lower left corner of the rear windshield. It shall be carried with the vehicle if there is no front windshield;
- c) If the temporary license plate is not returned after receiving the metal plate number, the temporary license plate will be invalid on the second day.

11 Replacement

When the license plate is unclear and incomplete due to the following conditions, which may affect the identification, or when the traffic control department of the public security organ specifies replacement, it shall replace the license plate:

- a) The license plate's character has been altered and cannot be restored;
- b) The reflection of the license plate's characters is obviously inconsistent or the reflection of the background color is obviously uneven;
- c) The mounting hole of the license plate is damaged or has other

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