

AUTOMOTIVE INDUSTRY STANDARD

**Finalized Draft**

**Automotive Vehicles  
High Security Registration Plate (HSRP)  
Specifications and Requirements**

**Date of hosting on website: 18.06.2019**

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**Status chart of the standard to be used by the purchaser for updating the record**

Sr. No.	Corrigenda.	Amendment	Revision	Date	Remark	Misc
General remarks:						

## INTRODUCTION

The Government of India felt the need for a permanent agency to expedite the publication of standards and development of test facilities in parallel when the work on the preparation of the standards is going on, as the development of improved safety critical parts can be undertaken only after the publication of the standard and commissioning of test facilities. To this end, the erstwhile Ministry of Surface Transport (MOST) has constituted a permanent Automotive Industry Standards Committee (AISC) vide order No. RT-11028/11/97-MVL dated September 15, 1997. The standards prepared by AISC will be approved by the permanent CMVR Technical Standing Committee (CTSC). After approval, the Automotive Research Association of India, (ARAI), Pune, being the Secretariat of the AIS Committee, has published this standard. For better dissemination of this information ARAI may publish this document on their Web site.

HSRP scheme was implemented under several Govt. notifications. As on today testing and certification, Type approval and CoP is carried out based on respective notifications and letters issued by the MoRT&H time to time. During 54<sup>th</sup> AISC, dated: 13th April 2017 meeting held at ARAI, Pune, it was decided to prepare the standard to consolidate all in one place.

This standard covers the approval of HSRP as applicable to all categories of vehicles. The standard covers the dimensional requirements of the plate, letters and other security features, color scheme, material, test requirements, Type approval and CoP procedure.

This standard is based on the following notifications, MoRT&H guidelines and international standards.

- a. GSR 221 (E) dated 28.03.2001
- b. SO 814 (E) dated 22.08.2001
- c. SO 938 (E) dated 24.09.2001
- d. S.O. 883 (E) dated 12.06.2006
- e. SO 1041 (E) dated 16.10.2001
- f. SO 2091(E), dated 16.09. 2011
- g. S.O.1140(E), dated:24.04.2014
- h. S.O.298 (E), dated:29.01.2016
- i. ISO:7591-1982(E) "Road Vehicles - Retro Reflective Registration Plates for Motor Vehicles and Trailers - Specifications"
- j. DIN: DIN 1745-1 (1983-02) Wrought Aluminium and Aluminium Alloy Plate, Sheet And Strip Greater Than 0,35 Mm In Thickness - Properties
- k. DIN 1783 (1981-04) Strips, Plates And Sheets Of Aluminium And Wrought Aluminium Alloys With Thicknesses Over 0,35 Mm, Cold Rolled - Dimensions
- l. DIN:74069 "Retro Reflecting Number Plates for Motor Vehicles and Their Trailers"
- m. ASTM D 4956: Standard Specification for Retroreflective Sheeting for Traffic Control
- n. MoRT&H letter No.: RT-11028/5/2002-MVL, dated: 04.09.2002
- o. MoRT&H letter No.: RT-11028/5/2002-MVL, dated: 20.06.2011
- p. Rule No. 50 and 51 of Central Motor Vehicle Rule 1989
- q. GSR 749 (E) dated: 07.08.2018
- r. GSR 1162(E) dated 04.12.2018
- s. SO 6052(E) dated 06.12.2018
- t. SO 1081(E) dated 25.02.2019

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<b>Automotive Vehicles High Security Registration Plate (HSRP) Specifications and Requirements</b>	
<b>1.0</b>	<b>SCOPE:</b>
	This standard specifies the component level requirements for High Security Registration Plate (HSRP) with the registration mark along with 3 <sup>rd</sup> Registration Plate Sticker (where applicable) and Snap lock that are intended for use on all motor vehicles including construction equipment vehicles. This standard covers dimensional requirements of the HSRP, letters and other features, color scheme, material specifications, test requirements, Type approval and CoP procedure.
<b>2.0</b>	<b>REFERENCES</b>
	<ul style="list-style-type: none"> <li>a. GSR 221 (E) dated 28.03.2001</li> <li>b. SO 814 (E) dated 22.08.2001</li> <li>c. SO 938 (E) dated 24.09.2001</li> <li>d. S.O. 883 (E) dated 12.06.2006</li> <li>e. SO 1041 (E) dated 16.10.2001</li> <li>f. SO 2091(E), dated 16.09. 2011</li> <li>g. S.O.1140(E), dated:24.04.2014</li> <li>h. S.O.298 (E), dated:29.01.2016</li> <li>i. ISO:7591-1982(E) "Road Vehicles - Retro Reflective Registration Plates for Motor Vehicles and Trailers - Specifications"</li> <li>j. DIN: DIN 1745-1 (1983-02) Wrought Aluminium and Aluminium Alloy Plate, Sheet and Strip Greater Than 0,35 Mm In Thickness - Properties</li> <li>k. DIN 1783 (1981-04) Strips, Plates and Sheets Of Aluminium And Wrought Aluminium Alloys With Thicknesses Over 0,35 Mm, Cold Rolled - Dimensions</li> <li>l. DIN:74069 "Retro Reflecting Number Plates for Motor Vehicles and Their Trailers"</li> <li>m. ASTM D 4956: Standard Specification for Retroreflective Sheeting for Traffic Control</li> <li>n. MoRT&amp;H letter No.: RT-11028/5/2002-MVL, dated: 04.09.2002</li> <li>o. MoRT&amp;H letter No.: RT-11028/5/2002-MVL, dated: 20.06.2011</li> <li>p. Rule No. 50 and 51 of Central Motor Vehicle Rule 1989</li> <li>q. GSR 749 (E) dated: 07.08.2018</li> <li>r. GSR 1162(E) dated 04.12.2018</li> <li>s. SO 6052(E) dated 06.12.2018</li> <li>t. SO 1081(E) dated 25.02.2019</li> </ul>
<b>3.0</b>	<b>DEFINITIONS</b>
3.1	<b>High Security Registration Plates "HSRP"</b> means completely finished vehicle registration plate along with 3rd Registration Plate Sticker (where applicable) and Snap lock ready to be mounted on a vehicle.
3.2	<b>'Blank'</b> means a flat aluminum plate that has an embossed borders on the side which is visible when installed on the vehicle and the area within the border covered with retro reflective sheeting shall bear the letters IND, hologram and permanent identification number preceded by two alphabets allotted testing agency.

3.3	<b>'Character'</b> means letter or number making up part of a vehicle registration mark.
3.4	<b>'Chromium Hologram'</b> means any such hologram, which is a chromium-based foil with diffractive optical variable devices incorporated.
3.5	<b>'Retro Reflection R'</b> means the reflection in which the reflected rays are preferentially returned in directions close to the opposite of the direction of the incident rays, this property being maintained over wide variations of the direction of the incident rays.
3.6	<b>"Coefficient of luminous intensity (CIL)"</b> means the quotient of the luminous intensity reflected in the direction considered, divided by the illumination of the retro-reflecting device for given angles of illumination, divergence and rotation.
3.7	<p><b>"Coefficient of retro-reflection (symbol R')"</b> means the quotient of the coefficient of luminous intensity R of a plane retro-reflecting surface and its area A.</p> $\left( R' = \frac{R}{A} \right) \quad \text{The coefficient of retro-reflection } R' \text{ is expressed}$ <p style="text-align: center;">in candelas per m<sup>2</sup> per lx (cd.m<sup>-2</sup>.lx<sup>-1</sup>)</p> $\left( R' = \frac{I}{E_{\perp} \cdot A} \right) \quad \text{(Luminance / Illumination);}$
3.8	<b>'Entrance Angle'</b> means the angle characterizing the angular position of the retro reflector with respect to the direction of the incident light.
3.9	<b>'Embossing'</b> means a process by which a raised border is embossed onto a plate (to form a blank) or by which characters are so embossed onto a blank that they stand out in relief on the retro reflective surface of a registration plate.
3.10	<b>'Hot Stamping Film'</b> means any such film, which is used for coloring of embossed portion of the license plate. The hot stamping film shall bear the inscription "INDIA". The letters "INDIA" shall be in blue colour with the font size of 10 (Ten) in Type Arial Bold script at 45 degrees' inclination with sequential lines being the mirror image of the other. It should retain its original colour with inscription on the embossed surface after being hot stamped.
3.11	<b>'Illuminants A and D65'</b> means as defined by the International Commission on Illumination (CIE) in Publication 15 (E.1.3.1).
3.12	<b>'Luminance'</b> means luminous flux in a beam, emanating from a surface, or falling on a surface, in a given direction, per unit of projected area of the surface as viewed from that direction, per unit solid angle.
3.13	<b>'Luminance Factor (at a point on the surface of a non-self-radiating body, in a given direction and under specific conditions of illumination)'</b> means the ratio of the luminance of the material to that of a perfect reflecting diffuser identically illuminated.

3.14	<b>'Observation Angle'</b> means the angle by which the direction of observation of the retro reflector differs from the direction of incident light.
3.15	<b>'Testing Agency'</b> an organization specified in Rule 50 of CMVR for Certification of compliance to the provisions. This definition is applicable to this standard for the certification of HSRP.
3.16	<b>'3rd Registration plate sticker'</b> The 3rd registration plate sticker in the form of a self-destructive type and the third registration plate sticker should be essentially diffraction foil film with high reflective index shall be of the size of 100±1 mm X 60±1 mm and shall have chromium base hologram embedded.
3.17	<b>'Snap Lock'</b> is the metallic lock which is essentially non-reusable type. The snap lock shall be so designed that it is not possible to remove by use of tool(s) unless break/cut the lock.
<b>4.0</b>	<b>APPLICATION FOR APPROVAL OF HSRP</b>
4.1	Information to be submitted at the time of applying for type approval of the HSRP as given in Annex A
<b>5.0</b>	<b>APPROVAL</b>
5.1	If the provisions of this standard are fulfilled approval shall be granted.
5.2	Two alphabets representing the name of the holder of the type approval shall be assigned by the test agency issuing the approval to each type approved HSRP as prescribed in this standard.
<b>6.0</b>	<b>GENERAL SPECIFICATIONS:</b>
6.1	<p>The plate shall be a solid unit made of 1.0-0/+0.2 mm aluminum conforming to DIN: 1745 / DIN: 1783. Manufacturer shall submit a test report to the test agency in evidence of the material of the HSRP complying with the standards.</p> <p>The plate border edges and corners shall be rounded to avoid injuries to the extent of approx. 10mm and the plates must have an embossed border. The plate shall be suitable for hot stamping and lamination of reflective sheet. The fast colouring using hot stamping film of legend and border to be done by hot stamping.</p> <p>The plate will not crack while embossing border or numbering and will sustain lamination of reflective sheet along with hot stamping film.</p> <p>The Registration Plate shall be guaranteed for imperishable nature for a period mentioned in rule 50 of the Central Motor Vehicles Rules, 1989.</p>
6.2	The plate should bear the letters "IND" as specified in Rule 50 of CMVR.
6.3	The chromium-based hologram specified in CMV rule 50 shall be of the size (20 mm x 20 mm) ± 1mm and is to be applied by hot stamping on the top left hand corner of the plate. The hologram shall contain CHAKRA in blue colour as given in ANNEX - B of this standard. Stickers and adhesive labels are not permitted.

6.4	The size of the registration plate for different categories of vehicles shall be in accordance with clause (vi) to sub-rule (1) of rule 50 of the Central Motor Vehicles Rules, 1989.																																						
6.5	<b>Colour scheme:</b> The colour scheme shall be as per CMVR as notified by MoRT&H from time to time.																																						
6.6	The plate shall bear a permanent identification number (PIN) of minimum ten digits, to be laser branded into the reflective sheeting on bottom left hand side of the registration plate with numerical size being $5.00^{\pm 0.2}$ mm height. The permanent identification number in Arabic numbers shall be preceded by two alphabets representing to holder of the type approval certificate is issued by the following test agencies given in table -1.																																						
	The test agencies specified in column (2) of the table below shall use the alphabets specified in column (3) and (4) of the said Table 1 as under while allotting the number to the number plate type approval holder.																																						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">Table 1</th> </tr> <tr> <th style="width: 10%;">Sr. No.</th> <th style="width: 50%;">Name of the Testing agency</th> <th style="width: 20%;">First Alphabet</th> <th style="width: 20%;">Second Alphabet</th> </tr> <tr> <th style="text-align: center;">(1)</th> <th style="text-align: center;">(2)</th> <th style="text-align: center;">(3)</th> <th style="text-align: center;">(4)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>Automotive Research Association of India, Pune (ARAI)</td> <td style="text-align: center;">A to D</td> <td style="text-align: center;">A to Z</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Central Institute of Road Transport (CIRT)</td> <td style="text-align: center;">E to H</td> <td style="text-align: center;">A to Z</td> </tr> <tr> <td style="text-align: center;">3.</td> <td>Central Road Research Institute, New Delhi (CRRI)</td> <td style="text-align: center;">I to L</td> <td style="text-align: center;">A to Z</td> </tr> <tr> <td style="text-align: center;">4.</td> <td>Global Automotive Research Centre, Chennai (GARC)</td> <td style="text-align: center;">M to P</td> <td style="text-align: center;">A to Z</td> </tr> <tr> <td style="text-align: center;">5.</td> <td>Vehicles Research Development Establishment, Ahmednagar (VRDE)</td> <td style="text-align: center;">Q to S</td> <td style="text-align: center;">A to Z</td> </tr> <tr> <td style="text-align: center;">6.</td> <td>International center for Automotive Technology (ICAT)</td> <td style="text-align: center;">T to V</td> <td style="text-align: center;">A to Z</td> </tr> </tbody> </table>			Table 1				Sr. No.	Name of the Testing agency	First Alphabet	Second Alphabet	(1)	(2)	(3)	(4)	1.	Automotive Research Association of India, Pune (ARAI)	A to D	A to Z	2.	Central Institute of Road Transport (CIRT)	E to H	A to Z	3.	Central Road Research Institute, New Delhi (CRRI)	I to L	A to Z	4.	Global Automotive Research Centre, Chennai (GARC)	M to P	A to Z	5.	Vehicles Research Development Establishment, Ahmednagar (VRDE)	Q to S	A to Z	6.	International center for Automotive Technology (ICAT)	T to V	A to Z
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6.7	The height of the PIN shall be $5.00^{\pm 0.2}$ mm for the front and rear registration plates and shall be $2.5^{-0+0.2}$ mm for the third registration plate, which shall be in the form of a sticker.																																						
6.8	The hot stamping film (black / white / yellow as the case may be) to be applied on the letters/numerals of the registration number shall bear the inscription "INDIA". The letters "INDIA" shall be in blue colour with the font size of 10 (Ten) in Type Arial Bold script at 45 degrees inclination with sequential lines being the mirror image of the other.																																						
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	<p>high reflective index shall be of the size of 100±1 mm X 60±1 mm and shall have chromium base hologram embedded. The details on the sticker shall be contain the description as specified in fig.2 in Annex B.</p> <p>The 3rd sticker plate shall be available in the colour scheme as per the directions issued by MoRTH from time to time. The colour coordinates for such 3rd Sticker plates shall as per 7.4.3 of this standard.</p>																																																																		
<b>7.0</b>	<b>PERFORMANCE REQUIREMENTS</b>																																																																		
<b>7.1</b>	The retro reflective outer background of the finished plate shall be flat and smooth. Where retro reflection is achieved by means of applied sheeting, the retro reflective material shall be applied to a corrosion resistance substrate to form a durable bond with the substrate and resist impact and bending. The reflective material shall be embossable to form letters and characters.																																																																		
<b>7.2</b>	<p><b>Test Conditions</b></p> <p>Test samples as per the clause No. 10.0 shall be representative of regular production. All samples shall be conditioned for 24hrs at 23 ± 5°C and (50±10) % RH before being tested.</p>																																																																		
<b>7.3</b>	<b>PHOTOMETRY PROPERTIES</b>																																																																		
<b>7.3.1</b>	<b>Minimum value of co-efficient of retro-reflection</b>																																																																		
	<p>The retro-reflective area of the plate shall have, in a new condition, the minimum values of co-efficient of retro-reflection expressed in candelas per lux per square meter (<math>cd.lx^{-1}m^{-2}</math>), given in Table - 2, when illuminated with a CIE Standard illuminant - A and measured as recommended by CIE with the entrance and observation angles in the same plane. (The angular subtense of the sample shall not be larger than 80'.</p> <p><i>Note: The adjustment of the entrance angle shall be such that the entrance and observation angles are on opposite sides of the line joining the light source to the center of the sample.</i></p>																																																																		
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="6" style="text-align: center;">Table – 2</th> </tr> <tr> <th style="width: 15%;">Colour</th> <th style="width: 15%;">Observation angle</th> <th colspan="4" style="text-align: center;">Entrance Angle</th> </tr> <tr> <td></td> <td></td> <th style="width: 10%;">5°</th> <th style="width: 10%;">30°</th> <th style="width: 10%;">40°</th> <th style="width: 10%;">Maximum</th> </tr> </thead> <tbody> <tr> <td rowspan="3" style="text-align: center;">White</td> <td style="text-align: center;">0°12'</td> <td style="text-align: center;">45</td> <td style="text-align: center;">18</td> <td style="text-align: center;">8</td> <td rowspan="3" style="text-align: center;">250</td> </tr> <tr> <td style="text-align: center;">0°20'</td> <td style="text-align: center;">30</td> <td style="text-align: center;">12</td> <td style="text-align: center;">6</td> </tr> <tr> <td style="text-align: center;">1°30'</td> <td style="text-align: center;">3.5</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0.7</td> </tr> <tr> <td rowspan="3" style="text-align: center;">Yellow</td> <td style="text-align: center;">0°12'</td> <td style="text-align: center;">30</td> <td style="text-align: center;">12</td> <td style="text-align: center;">5</td> <td rowspan="3" style="text-align: center;">250</td> </tr> <tr> <td style="text-align: center;">0°20'</td> <td style="text-align: center;">20</td> <td style="text-align: center;">8</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">1°30'</td> <td style="text-align: center;">2.3</td> <td style="text-align: center;">0.8</td> <td style="text-align: center;">0.4</td> </tr> <tr> <td rowspan="3" style="text-align: center;">Green</td> <td style="text-align: center;">0°12'</td> <td style="text-align: center;">9.0</td> <td style="text-align: center;">3.0</td> <td style="text-align: center;">1.0</td> <td rowspan="3" style="text-align: center;">250</td> </tr> <tr> <td style="text-align: center;">0°20'</td> <td style="text-align: center;">7.0</td> <td style="text-align: center;">2.3</td> <td style="text-align: center;">0.9</td> </tr> <tr> <td style="text-align: center;">1°30'</td> <td style="text-align: center;">0.6</td> <td style="text-align: center;">0.15</td> <td style="text-align: center;">0.08</td> </tr> <tr> <td style="text-align: center;">Black</td> <td colspan="5" style="text-align: center;">Not Applicable</td> </tr> </tbody> </table>	Table – 2						Colour	Observation angle	Entrance Angle						5°	30°	40°	Maximum	White	0°12'	45	18	8	250	0°20'	30	12	6	1°30'	3.5	2	0.7	Yellow	0°12'	30	12	5	250	0°20'	20	8	4	1°30'	2.3	0.8	0.4	Green	0°12'	9.0	3.0	1.0	250	0°20'	7.0	2.3	0.9	1°30'	0.6	0.15	0.08	Black	Not Applicable				
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7.3.2	<b>Uniformity of retro-reflection</b>																																																																							
	<p>If local variations in luminance are apparent when a sample plate having a retro-reflective background, but no legend, is observed under retro-reflective viewing conditions, photometric measurements shall be made at an observation angle of 20' and an entrance angle of 5° to check the amount of variation.</p> <p>Relative measurements shall be made, in the region of the observed variation, of the coefficient of luminous intensity of several adjacent areas, each 5 x 5 cm. The ratio of the highest to the lowest reading shall not exceed 2.</p>																																																																							
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	<p>When measured in accordance with the provisions of the CIE document No, 15 (1971) and illuminated with the CIE Standard illuminant D<sub>65</sub>, at 45° to the normal and viewed along the normal (45/0 geometry), the color of the retro-reflective surface (in a new condition) shall be located within the area defined by the chromaticity co-ordinates in Table 3 and comply with the luminance factor.</p>																																																																							
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7.4.3	<p><b>By day for third registration plate sticker:</b> Day time Colorimetric properties for the back ground of the third registration plate sticker when measured as per ISO:7591-1982</p>																																																		
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7.5	<p><b>ENVIRONMENTAL TEST</b></p> <p><i>Note: Refer Cl No. 10.0 for the type of test samples used in the following tests.</i></p>																																																		
7.5.1	<p><b>Temperature Resistance:</b></p> <p>A test sample and a third registration plate sticker - pasted on the glass is subjected to the following conditions in sequence.</p> <p>a) 7 h consecutively at a temperature of <math>65 \pm 2^\circ\text{C}</math> with a relative humidity of <math>10 \pm 5\%</math>.</p> <p>b) 1 h at a temperature of <math>23 \pm 5^\circ\text{C}</math> and <math>50 \pm 10\%</math> relative humidity.</p> <p>c) 15 h consecutively at a temperature of <math>-20 \pm 2^\circ\text{C}</math>.</p> <p>At the end of this test, the reflective material, the letters and digits shall show no peeling off the substrate, no cracking, blistering or appreciable discoloration.</p> <p>At the end of this test, third registration plate sticker shall not be possible to remove physically in one piece from the glass interface and no bubble formation and physical damages.</p>																																																		
7.5.2	<p><b>Adhesion to the Plate (in the case of reflective sheeting)</b></p> <p>Condition the test sample for 1 hr at <math>-20^\circ \pm 2^\circ</math>. Immediately after taking the sample out of the cold storage, it shall not be possible to remove the retro-reflective material physically in one piece from the substrate at the adhesive/plate interface.</p>																																																		
7.5.3	<p><b>Impact Resistance (in the case of reflective sheeting)</b></p> <p>Condition the test sample for 1 h at <math>-20^\circ \pm 2^\circ\text{C}</math>. Immediately after being taken out of the cold storage, place the sample plate with the reflective side up on a solid support base such as concrete or a 12.5 mm steel plate and allow a steel ball of 25 mm diameter to drop from a height of 2 m onto a flat section of the sample.</p> <p>The retro-reflective material shall show no cracking or separation from the substrate 'outside of a distance of 5 mm from the impacted area.</p>																																																		

7.5.4	<b>Bending Resistance (in the case of reflective sheeting)</b>
	Bend the flat area of the test plate should be bent within a period of 2 s over a mandrel of 50 mm diameter to an included angle of 90° with the retro-reflective material facing outwards, at a temperature of 23°± 5°C. There shall be no cracking. To facilitate bending, any embossed border shall be cut from the top and bottom of the test plate.
7.5.5	<b>Water Resistance</b>
	Immerse the test plate for a period of 24 h consecutively in deionized water at 23°±5 °C and then allow it to dry for 48 h at normal room temperature.  Following completion of this test, the sample shall show no evidence of deterioration which could reduce its effective performance.
7.5.6	<b>Cleanability</b>
	The test sample smeared with a mixture of lubricating oil and graphite shall be easily cleaned without damage to the reflective surface when wiped with a mild aliphatic solvent such as heptane, followed by washing with a neutral detergent.
7.5.7	<b>Resistance to Fuel</b>
	Immerse a portion of the sample plate, including letters and numerals, for 1 min in a test fuel composed of 70 % n-heptane and 30 % toluene (by volume).  After removal, inspect the surface, which shall not show any visible change, which would reduce its effective performance.
7.5.8	<b>Resistance to Saline Mist</b>
	Subject a sample plate of HSRP and snap lock to the action of a saline mist for two cycles of 22 h each, separated by an interval of 2 h at room temperature during which the sample is allowed to dry.  The saline mist shall be produced by atomizing, at a temperature of 35 ± 2 °C, a saline solution obtained by dissolving 5 parts by mass of sodium chloride in 95 parts by mass of deionized water  After completion of the test, wash the sample plate with water, dry with a cloth, then examine it. There shall be no corrosion which would reduce its effective performance.
7.5.9	<b>Durability</b>
	Subject a sample plate to a source of illumination in accordance with the ISO 105 B02 for 500 hrs.  After this test, the colour of the registration plate shall still meet the chromaticity requirements in Table - 3 and the coefficient of retro-reflection shall not be less than 50% of the values in Table-2 at the 0° 20' observation and 5° entrance angle.  The luminance factor shall not be lower than 80% of values in Table - 3. The complete sample shall show no evidence of deterioration, which could reduce its effective performance.

<b>8.0 Conformity of Production (CoP)</b>													
8.1	<p>The TAC holder shall maintain complete record of all the security features in their possession which will be audited during CoP by the testing agency, which includes; purchase orders of all raw materials, Laser branding records and its dispatch, vendor's test report / inspection reports etc.</p> <p>HSRP approved under this standard shall be so manufactured as to conform to all the tests as mentioned in 7.0 of this standard, except durability test which will be carried out once in a year.</p> <p>The CoP procedure shall be as per the guidelines issued by the statutory authority.</p>												
8.2	<p>The frequency of COP shall be as follows. The period of CoP shall be counted from the date on which the last COP was due. The CoP period will be applicable after start of production per plant.</p>												
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9.0	<p><b>Penalties for non-conformity of production;</b></p> <p>Shall be as prescribed in AIS 037 and as per the S.O. 6052(E), dated: 6<sup>th</sup> December 2018.</p>												

**10.0 Minimum samples to be submitted during Type approval:**

The following test samples of each color shall be submitted to the laboratory for approval testing

Sr. No.	Test	No. of samples required			
		Blank	HSRP Sample	Third Number plate sticker	Snap lock
1.	General Requirements as per Gazette notifications	----	01	01	01
2.	Minimum value of co-efficient of retro-reflection	01	---		
3.	Uniformity of retro-reflection on random slices 50X50 mm	---	---		
4.	Colour Test by Day	---	---		
5.	Measurements of luminance factor by day	---	---		
6.	Colour Test by Night	---	---		
7.	Temperature Resistance	---	01	01	
8.	Adhesion to substrate	01	---	01	
9.	Impact Resistance		---		
10.	Bending Resistance	01	---		
11.	Water Resistance	---	01	01	
12.	Cleanability	---	01		
13.	Resistance to fuel	---	01		
14.	Resistance to Saline mist	---	01	01	01
15.	Durability	01	01		
Total each type		04	07		
Total for all types and colour (White, yellow and green)		4X3X4 = 48	4X3X7 = 84		
Total all combination		= 132 Nos.			
Snap Lock		02 Nos.			02
Third Number plate sticker		05 Nos. of each colour (05 pasted on piece of glass)		05	

## Annexure – A

**INFORMATION AND SAMPLES TO BE SUBMITTED AT THE TIME OF  
APPLICATION FOR TYPE APPROVAL**

1	Test component/material	Availability	
		Yes	No
1.1	Quantity of the High Security Number Plates : Quantity of the Third Number Plates : Snap Locks :		
1.2	Sample of raw materials used for the manufacturing High Security Number Plate such as Aluminum plate, Reflective sheet, Hologram, India Inscription foil, "IND" if it comes separately.		

2.	General information	Availability	
		Yes	No
2.1	Test Request letter bearing following information		
2.2	Manufacturer's name and address		
2.4	Agreement copy of the collaborator if you have any collaboration		
2.5	Description of process chart/control plan/production plan and facilities planned to be set up for productionising the no. plate.		
2.6	Process plan / control plan followed for the samples along with different production stages and where these production processes are performed? (e.g. blanks are processed at "Name of the place" , embossing is done at "Name of the place", hot stamping of hologram is done at "Name of the place" etc.)		
2.7	Do you have got any indigenisation plans? If yes, provide us details please.		
2.8	Chakra design declaration (not as per IS1 and 300)		
2.9	Salient difference between chakra design used in hologram and chakra as per IS1 and 300		
2.10	Declarations for source of input materials		
2.11	Material of the plate and test report of that plate material		
2.12	Declaration for 3 <sup>rd</sup> number plate Diffraction foil film, high reflective index and chromium base hologram of third number plate including write-up for security features		

2.13	<p>List of input materials used for the number plate along with the manufacturer name, address, a letter from input material supplier stating that he is supplying the said input material to the applicant. Also send us the specification of each input material used in your number plates along with warranty certificates.</p> <ul style="list-style-type: none"> <li>➤ Aluminum</li> <li>➤ Reflective sheet</li> <li>➤ Hologram</li> <li>➤ Third number plate</li> <li>➤ India Inscription</li> <li>➤ Snap lock</li> </ul>		
2.14	<p>Detailed drawing in triplicate with Drawing no., Rev. No., proper authentication in A4 size as well as in 1:1 scale including all the dimensions of alphabets &amp; numerals material specifications.</p> <p>Plate size 500 X 120 mm          Plate size 340 X 200 mm          Plate size 200 X 100 mm          Plate size 285 X 45mm          Third number plate          Snap lock          "INDIA" Inscription          Hologram depiction          "IND" letter          "LASER" marking          Enlarged Chakra hologram drawing clearly showing all the dimensions details of inside circles, outer circles, spokes dimensions, distance between spokes etc.</p>		





**ANNEX C**  
**COMPOSITION OF AISC PANEL ON**  
**High Security Registration Plate (HSRP)**

**To be included**