

## **Proposal for amendments to GTR No. 6**

### **A. Proposal:**

*Paragraph 6.3.4.1.*, amend to read:

- “6.3.4.1 The test piece shall be 300 x 300 mm flat sample, specially made or cut from the flattest part of a windscreen or pane. The test piece shall be as defined in paragraph 7.2. in the case that the following toughened glass of vehicles is exposed to the inside of vehicle:
- (a) Sunroofs and panoramic sunroofs
  - (b) The roof of vehicle

*Annex 7, Insert new paragraph 7.2.*, to read:

“7.2 Annex 7.2. Procedures for determining test pieces for toughened glass

7.2.1 Test pieces shall be determined as follows:

7.2.1.1 Determination of test pieces which does not have opaque obscuration area

7.2.1.1.1 Test pieces shall be 300 x 300 mm flat samples which is specially manufactured not to have any opaque obscuration area, if paragraphs 7.2.1.1.2. and 7.2.1.1.3. of this annex are met.

7.2.1.1.2 For mounting the glass to vehicle, toughened glass shall incorporate opaque obscuration area no larger than **50%** to the surface area of the finished product.

7.2.1.1.3 If toughened glass is exposed to the inside of vehicle, the width of opaque obscuration area shall be no longer than **25mm** from the edge of the designed glass outline.

7.2.1.2 Determination of opaque obscuration test pieces

7.2.1.2.1 If a finished product does not comply with the requirements of paragraphs 7.2.1.1.2. and 7.2.1.1.3, test pieces shall be 300 x 300 mm flat samples, specially manufactured to have opaque obscuration area printed inside.

### **B. Justification:**

1. One of the important characteristics of toughened glass is the mechanical strength against external impact that is stronger compared to that of before toughened glass (annealed glass). If the mechanical strength of toughened glass is weaker than annealed glass (or that of before toughened glass), it means that the toughened glass has not met its characteristics. Thus, it has defined the characteristics of toughened glass of which strength is increased compared to annealed glass.
2. The 2013 defect investigation results of the Republic of Korea confirmed that opaque obscuration areas (ceramic printed areas) are particularly vulnerable to its mechanical strength and do not meet the requirement under UN GTR 6. An opaque obscuration is an important element that affects the mechanical strength of a finished product. If toughened glass suddenly shatters into pieces while driving and falls into the vehicle, it may negatively affect driving. However, there is no alternative technology that can currently replace the opaque obscuration areas (ceramic printed areas), and if opaque obscuration area (ceramic printed area) is necessary for fixing toughened glass to vehicle, the

size of an opaque obscuration area (ceramic printed area) should be limited to the minimum for safe driving and consumer protection. So the Korea analyzed current status of ceramic printed area applied to the toughened glass in sunroof and panoramic sunroof and conducted the experimental test about potential possibility of glass breakage caused by the vulnerable strength of ceramic printed area of toughened glass in sunroof and panoramic sunroof. Accordingly, it will be necessary to limit the ceramic printed area and to decide the type of test piece for 227g ball drop test depending on an opaque obscuration area (ceramic printed area) in the case that the toughened glass installed at the roof of vehicle(including sunroof and panoramic sunroof) are exposed to the internal space of vehicle.

(a) In the case of conducting the ball drop test with a test piece that does not have any opaque obscuration areas.

- Conduct test with a 300 x 300 mm test piece of which opaque obscuration area is not included, if a finished product meets the limited allowable areas of opaque obscuration stated in paragraphs 7.2.1.1.2 and 7.2.1.1.3.
- Paragraph 7.2.1.1.2 means to exclude opaque obscuration from a test sample if the maximum opaque obscuration area per the finished product is less than 50 %.
- Paragraph 7.2.1.1.3 means to exclude opaque obscuration from a test sample if the maximum width from the edge of the area shown inside of the vehicle to the boundary of opaque obscuration area is less than 25 mm.

(b) In the case of conducting the ball drop test with opaque obscuration printed test pieces

- Paragraph 7.2.1.2.1 means that conducting test with a 300 x 300 mm test sample of which opaque obscuration is printed inside if the opaque obscuration area of a finished product does not comply with the limited area permitted in paragraphs 7.2.1.1.2 and 7.2.1.1.3.