from the conditioning environment. The helmet shall be returned to the conditioning environment within 3 minutes after it was removed for a minimum of 2 minutes before testing is resumed. If the helmet is out of the conditioning environment for longer than 3 minutes, it shall be reconditioned for 5 minutes for each minute it is out of the conditioning environment beyond

the allotted 3 minutes before testing is resumed.

(d) Helmets shall be tested for dynamic strength of the retention system prior to being tested for impact attenuation. Helmets 1 through 4 (conditioned in ambient, high temperature, low temperature, and water immersion environments) shall be tested in accordance with the dynamic retention system strength test at

§ 1203.16. Helmets 1 through 4 shall then be tested in accordance with the impact attenuation tests on the flat, hemispherical, and curbstone anvils in accordance with the procedure at § 1203.17. Helmet 5 (conditioned in an ambient environment) shall be tested in accordance with the positional stability tests at § 1203.15. Table 1203.13 summarizes the test schedule.

TABLE 1203.13.—TEST SCHEDULE

	§ 1203.14 Peripheral vision	§ 1203.15 Positional stability	§ 1203.16 Retention system strength	§ 1203.17 Impact tests—4 im- pacts per helmet
Helmet 1—Ambient	X		X	1 Flat X 1Hemi. X 1 Curb. X 1 TBD* X
Helmet 2—High Temperature			X	1 Flat X 1 Hemi. X 1 Curb. X 1 TBD* X
Helmet 3—Low Temperature			X	1 Flat X 1 Hemi. X 1 Curb. X 1 TBD* X
Helmet 4—Water Immersion			X	1 Flat X 1 Hemi. X 1 Curb. X 1 TBD* X
Helmet 5—Ambient	X	X		

^{*} To Be Determined. The fourth impact can be on any of the anvils, at the discretion of the test personnel.

§1203.14. Peripheral vision test.

Position the helmet on a reference headform in accordance with the HPI and place a 5-kg (11-lb) preload ballast on top of the helmet to set the comfort or fit padding. (Note: Peripheral vision clearance may be determined when the helmet is positioned for marking the test lines.) Peripheral vision is measured horizontally from each side of the midsagittal plane around the point K (see Figure 6 to this part). Point K is located on the front surface of the reference headform at the intersection of the basic and midsagittal planes. The vision shall not be obstructed within 105 degrees on each side of the midsagittal plane from point K.

§ 1203.15 Positional stability test (roll-off resistance).

- (a) Test equipment. (1) Headforms. The geometry of the test headforms shall comply with the dimensions of the full chin ISO reference headforms sizes A, E, J, M, and O.
- (2) Test fixture. The headform shall be secured in a test fixture with its vertical axis pointing downward and 45 degrees to the direction of gravity (see Figure 7 to this part). The test fixture shall

permit rotation of the headform about its vertical axis and include means to lock the headform in the face up and face down positions.

- (3) Dynamic impact apparatus. A dynamic impact apparatus shall be used to apply a shock load to a helmet secured to a test headform. The dynamic impact apparatus shall allow a 4-kg (8.8-lb) drop weight to slide in a guided free fall to impact a rigid stop anvil (see Figure 7). The entire mass of the dynamic impact assembly, including the drop weight, shall be no more than 5 kg (11 lb).
- (4) Strap or cable. A hook and flexible strap or cable shall be used to connect the dynamic impact apparatus to the helmet. The strap or cable shall be of a material having an elongation of no more than 5 mm (0.20 in.) per 300 mm (11.8 in.) when loaded with a 22-kg (48.5 lb) weight in a free hanging position.
- (b) Test procedure. (1) Orient the headform so that its face is down, and lock it in that orientation.
- (2) Place the helmet on the appropriate size full chin headform in accordance with the HPI and fasten the retention system in accordance with the

manufacturer's instructions. Adjust the straps to remove any slack.

- (3) Suspend the dynamic impact system from the helmet by positioning the flexible strap over the helmet along the midsagittal plane and attaching the hook over the edge of the helmet as shown in Figure 7.
- (4) Raise the drop weight to a height of 0.6 m (2 ft) from the stop anvil and release it, so that it impacts the stop anvil.
- (5) The test shall be repeated with the headform face pointing upwards, so that the helmet is pulled from front to rear.

§ 1203.16 Dynamic strength of retention system test.

- (a) Test equipment. (1) ISO headforms without the lower chin portion shall be used.
- (2) The retention system strength test equipment shall consist of a dynamic impact apparatus that allows a 4-kg (8.8-lb) drop weight to slide in a guided free fall to impact a rigid stop anvil (see Figure 8). Two cylindrical rollers that spin freely, with a diameter of 12.5±0.5 mm (0.49 in.±0.02 in.) that have a center-to-center distance of 76.0±1 mm (3.0±0.04 in.), shall make up a stirrup that represents the bone structure of the