



**PRODUCT MANUAL FOR  
EAR PROTECTORS  
ACCORDING TO IS 9167:1979**

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.*

1.	<b>Product</b>	:	IS 9167 : 1979
	<b>Title</b>	:	EAR PROTECTORS
	<b>No. of Amendments</b>	:	1
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	Not Applicable
b)	<b>Grouping guidelines</b>	:	Please refer ANNEX –A
c)	<b>Sample Size</b>	:	10 nos
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX –B
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX –C
5.	<b>Possible tests in a day :</b>		
	As the licence is operated on Factory Testing basis, complete testing has to be carried out in the Factory. <b>4 days</b> are required for complete testing.		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 9167: 1979 with the following scope:		
	<b>Name of the product</b>	Ear Protectors	
	<b>Type</b>	a) Ear-plugs — permanent/disposable b) Ear-muffs c) Helmets	

**ANNEX A**

**Grouping Guidelines**

1. The ear protectors covered in IS 9167 are classified as follows:

- a) Ear-plugs - permanent or disposable
- b) Ear-muffs
- c) Helmets

2. For the purpose of GoL/ CSoL, each type of ear protector as mentioned at 1 a), b) and c) above shall be tested separately. However, if permanent ear-plugs are tested, disposable ear-plugs may also be covered in the scope of licence.

3. The Firm shall declare the varieties of Ear Protectors they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing capability and Testing facilities of the Manufacturer.

4. During the operation of the Licence, BO shall ensure that all the Varieties covered in the Licence are tested in rotation to the extent possible.

**Annex B****List of Test Equipment***Major test equipment required to test as per the Indian Standard*

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Damp Heat Test, Accelerated (Cl. 6.1.2)	<ul style="list-style-type: none"> <li>Testing chamber as per Cl. 4 of IS 9000 (Part V/Sec 1) : 1981</li> </ul>
2	Rapid Change of Temperature Test (Cl. 6.1.3)	<ul style="list-style-type: none"> <li>Testing chamber as per Cl. 5.1 of IS 9000 (Part 14/Sec 2): 1988 capable of maintaining upper (+55°C) and lower (-25°C) temperature severities</li> <li>Instrument for velocity measurement [Cl. 5.1.4 of IS 9000 (Part 14/Sec 2) : 1988 ]</li> <li>Mounting/supporting arrangement as per Cl. 5.2 of IS 9000 (Part 14/Sec 2) : 1988</li> </ul>
3	Low Air Pressure Test (Cl. 6.1.4)	<ul style="list-style-type: none"> <li>Vacuum pump and gauge</li> </ul>
4	Low Temperature Impact Test (Cl. 6.1.5)	<ul style="list-style-type: none"> <li>Environmental chamber with air temperature in the chamber at - 25°C</li> <li>Scale/Measuring tape (for 1.0 m height)</li> </ul>
5	Cleanability Test (Cl. 6.1.6)	<ul style="list-style-type: none"> <li>Liquid petrolatum (mineral oil, liquid paraffin)</li> <li>Graphite</li> <li>Cleaning and disinfection agents (as per manufacturer's instructions)</li> </ul>
6	Salt Mist Test (Cl. 6.1.7)	<ul style="list-style-type: none"> <li>Single chamber as per Cl. 4 of IS 9000 (Part XI) : 1983</li> <li>OR</li> <li>Salt mist chamber and humidity chamber as per Cl. 4 of IS 9000 (Part XI) : 1983</li> <li>Salt solution as per Table 1/Table 2</li> <li>pH meter</li> <li>Drying oven</li> </ul>
7	Headband Extension Test (Cl. 6.1.8)	<ul style="list-style-type: none"> <li>Force measurement arrangement</li> <li>Scale</li> </ul>
8	Sound Attenuation Measurement (Cl. 6.2)	As per IS 6229 Cl. 3: <ul style="list-style-type: none"> <li>Test Room</li> </ul>

		<ul style="list-style-type: none"><li>• White noise generator</li><li>• Third-octave filter set</li><li>• Control circuits</li><li>• Loudspeakers with power amplifier</li><li>• Head-positioning device</li><li>• Means to measure Earmuff Device Force</li><li>• Listeners</li></ul> <p>OR</p> <p>As per Appendix B:</p> <ul style="list-style-type: none"><li>• Test Room</li><li>• Acoustic Test Filed</li><li>• Dummy Head as per Fig. 1</li><li>• Acoustic Isolation Test Cup as per Fig. 2</li><li>• Observed sound pressure level apparatus</li><li>• Headband force apparatus as per Fig. 3</li></ul>
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*The above list is indicative only and may not be treated as exhaustive.*

ANNEX C

Scheme of Inspection And Testing

**1. LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

**1.1** The manufacturer shall prepare a calibration plan for the test equipments.

**2. TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.

**3. LABELLING AND MARKING** – In addition to the requirements as per IS 9167:1979, Lot no. or Batch no. for traceability shall be marked on the container/package of ear protector:

**4. CONTROL UNIT** – All ear protectors of the same type manufactured in a day/shift from the same consignment of raw materials under similar conditions shall constitute a control unit.

**5. LEVELS OF CONTROL** - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

**5.1** All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

**6. REJECTIONS** – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4	Materials	4	IS 9167	R	One	Each Consignment	
5	Construction and Workmanship	5	IS 9167	-	Each ear protector		
6.1.1	Visual examination	6.1.1	IS 9167	R	5	Each Control Unit	
6.1.2	Damp heat (accelerated)		IS 9000 (Part 5/ Sec 1)	R	2	Each Control Unit	
6.1.3	Rapid change of temperature		IS 9000 (Part 14/ Sec 2)	R	2	Each Control Unit	
6.1.4	Low Air Pressure	6.1.4	IS 9167	R	Ten of each type	Once in a month	
6.1.5	Low temperature impact	6.1.5	IS 9167	R	3	Each Control Unit	
6.1.6	Cleanability	6.1.6	IS 9167	R	3	Each Control Unit	
6.1.7	Salt Mist		IS 9000 (Part 11)	R	Ten of each type	Once in a year	
6.1.8	Headband extension	6.1.8	IS 9167	R	5	Each Control Unit	
6.2	Sound attenuation	6.2.1	IS 9167	R	5	Each Control Unit	
8	Maintenance	8	IS 9167	-	Each Ear Protector		

Note-1: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.