

SINGAPORE STANDARD

**Specification for protective helmets for
motorcyclists**



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The organisations in which the experts of the Working Group are involved are:

Automobile Association of Singapore
Comfort Delgro Driving Centre Pte Ltd
Edarte
National University of Singapore
Singapore Motor Cycle Trade Association
Singapore Road Safety Council
Singapore Safety Driving Centre
Traffic Police Department
TÚV SÚD PSB Pte Ltd

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Foreword

This Singapore Standard was prepared by the Working Group appointed by the Technical Committee on Personal Safety and Health under the purview of the General Engineering and Safety Standards Committee.

It is a revision of SS 9 : 1992 – ‘Specification for protective helmets for motor cyclists’. This revision is based on BS 6658 : 1985 ‘Specification for protective helmets for vehicle users’ and the following materials from the British Standard were reproduced/adapted with the permission of the BSI Standards Ltd:

- Definitions (Clause 2)
- Construction (Clauses 5.1, 5.2, 5.3, 5.4.3, 5.5 and Figures 1 and 2)
- Performance (Clauses 6.1, 6.2.2, 6.3.2, 6.3.3, 6.3.4 and 6.4)
- Information label (Clause 9.1)
- Appendix B Extent of shell and peripheral vision
- Appendix D Solvent conditioning
- Appendix E Conditioning before testing
- Appendix F Shock absorption test
- Appendix G Penetration test
- Appendix J Test for strength of retention systems with chin straps
- Appendix K Test for chin strap slippage
- Appendix L Test for resistance to abrasion of the chin strap
- Appendix M Test for strength of retention systems without chin straps
- Appendix N Test for resistance to inertial release of quick-release mechanism, or “buckle”
- Appendix P Test for durability of quick-release mechanism
- Appendix Q Oblique impact test
- Appendix R Test of chin guard

The helmets specified in this standard are not intended for high speed competitive events but are intended to give a reasonable measure of protection to the ordinary motorcyclist on the road.

It is emphasised that the protection given cannot be complete and that the wearing of a helmet may not prevent injury or death in severe accidents. The attention of users should be drawn to the fact that helmets are, of necessity, so constructed that the energy of a severe blow is absorbed in the partial destruction of the shell and/or protective padding material although damage may not be visible to the eye; any helmet which suffers such an impact should therefore be discarded and replaced by a new one.

The summary of changes from the 1992 edition are as follows:

- (a) Inclusion of UNECE R22 as a reference.
- (b) Revision to test parameters for shock absorption of the shell, strength and effectiveness of the retention systems, oblique impact resistance and light transmittance of the visor to be in line with UNECE R22.
- (c) Alignment with current industry practices.

In preparing this standard, reference was made to the internationally recognised United Nations Economic Commission for Europe Regulation Number 22 (UNECE R22) on the uniform provisions concerning the approval of protective helmets and their visors for drivers and passengers of motor cycles and mopeds. The test parameters critical to the safety of the user were compared against UNECE R22.

Figures F.1 and F.2 of this Singapore Standard are identical transcriptions of and conform to the requirements set out in Figures 1 and 3 of Annexes 4 and 8 respectively of UN Regulation No. 22, Revision 4, annexed to the 1958 UN Agreement, (E/ECE/TRANS/505 /Rev.1/Add.21/Rev.4) on “Uniform provisions concerning the approval of protective helmets and of their visors for drivers and passengers of motor cycles and mopeds”. They are reproduced by permission of UNECE.

Reference was also made to the following publications:

1. BS 1154 Natural rubber compounds. Specification
2. BS 6658 Specification for protective helmets for vehicle users
3. BS EN 960 Headforms for use in the testing of protective helmets
4. ISO 6487 Road vehicles – Measurement techniques in impact tests – Instrumentation
5. UNECE R22 Uniform provisions concerning the approval of protective helmets and their visors for drivers and passengers of motor cycles and mopeds

Acknowledgement is made for the use of information from the above publications and also made to BSI and UNECE for the reproduction of materials from their publications.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions.*
2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR.*
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Specification for protective helmets for motorcyclists

1 Scope

This standard specifies requirements for helmets to be worn by riders and passengers of motorcycles and motorcycles with side cars excluding those used by participants in competitive events.

Requirements for accessories such as goggles, detachable peaks and detachable face covers are not specified.

Requirements with corresponding methods of test are given for:

- (a) extent of shell;
- (b) shock absorption properties;
- (c) penetration resistance;
- (d) response to oblique impact;
- (e) strength of chin guard;
- (f) strength and effectiveness of retention system; and
- (g) light transmission of visors.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 1154	Natural rubber compounds. Specification
BS EN 960	Headforms for use in the testing of protective helmets
ISO 6487	Road vehicles – Measurement techniques in impact tests – Instrumentation