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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



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47/2844/NP, 47/2899A/RVN

IEC TC 47 : SEMICONDUCTOR DEVICES	
SECRETARIAT: Korea, Republic of	SECRETARY: Mr Cheolung Cha
OF INTEREST TO THE FOLLOWING COMMITTEES:	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED:	

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TITLE:

**Semiconductor devices - Chip-scale testing for autonomous vehicles - Part 5:
Ultrasonic devices**

NOTE FROM TC/SC OFFICERS:

This revised CD document reflects the scope and title change.(47/2939/Q and 47/2964/RQ)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

Semiconductor devices – Chip-scale testing for autonomous vehicles -**Part 5: Ultrasonic devices**

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IEC 63551-5 has been prepared by IEC technical committee TC47: Semiconductor devices. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at https://www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at <https://www.iec.ch/standardsdev/publications>.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](https://wwwstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

Semiconductor devices – Chip-scale testing for autonomous vehicles -

Part 5: Ultrasonic devices

1 Scope

This part of IEC 63551 specifies the standard testing conditions and testing methods that can be used to evaluate and determine the performance of ultrasonic devices for detection modules used in autonomous vehicle. This document applies to the performance testing for ultrasonic devices used in autonomous vehicles.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61094-4:1995, *Measurement microphones - Part 4: Specifications for working standard microphones*

ISO 3745:2012, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Precision methods for anechoic rooms and hemi-anechoic rooms*

3 Terms, definitions and abbreviations

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1 Terms and definitions

3.1.1

ultrasonic device

ultrasonic device which transmits or receives ultrasonic waves with frequency beyond 20kHz to detect targets. The ultrasonic device in this article includes: ultrasonic transducers and their peripheral accessories. Transducers typically have the function of emitting or receiving ultrasonic signals, or they may have both functions simultaneously.

3.1.2

sound pressure level

SPL

L_p

logarithmic scale ratio of the time-mean-square of a sound pressure value to the reference value, expressed as in Formula (1).

$$L_p = 20 \log \left(\frac{p}{p_0} \right) \quad (1)$$

where