

Number and Title of the Indian Standard:	<p><b>IS 15040: 2019</b>  <b>/CISPR 25: 2016</b>  <b>Radio Disturbance Characteristics for Protection of Receivers used on Board Vehicles, Boats and Internal Combustion Engines — Limits and Methods of Measurement (Second Revision)</b></p>
a) Scope:	<p>This Indian Standard contains limits and procedures for the measurement of radio disturbances in the frequency range of 150 kHz to 2 500 MHz. The standard applies to any electronic/electrical component intended for use in vehicles, trailers and devices. Refer to International Telecommunications Union (ITU) publications for details of frequency allocations. The limits are intended to provide protection for receivers installed in a vehicle from disturbances produced by components/modules in the same vehicle. The method and limits for a complete vehicle (whether connected to the power mains for charging purposes or not) are in Clause 5 and the methods and limits for components/modules are in Clause 6. Only a complete vehicle test can be used to determine the component compatibility with respect to a vehicle's limit.</p> <p>The receiver types to be protected are, for example, broadcast receivers (sound and television), land mobile radio, radio telephone, amateur, citizens' radio, Satellite Navigation (GPS etc.), Wi-Fi and Bluetooth. For the purpose of this standard, a vehicle is a machine, which is self-propelled by an internal combustion engine, electric means, or both. Vehicles include (but are not limited to) passenger cars, trucks, agricultural tractors and snowmobiles. Annex A provides guidance in determining whether this standard is applicable to particular equipment.</p> <p>This International Standard does not include protection of electronic control systems from radio frequency (RF) emissions or from transient or pulse-type voltage fluctuations. These subjects are included in ISO publications.</p> <p>The limits in this standard are recommended and subject to modification as agreed between the vehicle manufacturer and the component supplier. This standard is also intended to be applied by manufacturers and suppliers of components and equipment which are to be added and connected to the vehicle harness or to an on-board power connector after delivery of the vehicle.</p> <p>Since the mounting location, vehicle body construction and harness design can affect the coupling of radio disturbances to the on-board radio, Clause 6 of this standard defines multiple limit levels. The level class to be used (as a function of frequency band) is agreed upon between the vehicle manufacturer and the component supplier.</p> <p>This standard defines test methods for use by Vehicle Manufacturers and Suppliers, to assist in the design of vehicles and components and ensure controlled levels of on-board radio frequency emissions.</p> <p>Vehicle test limits are provided for guidance and are based on a typical radio receiver using the antenna provided as part of the vehicle, or a test antenna if a unique antenna is not specified. The frequency bands that are defined are not applicable to all regions or countries of the world. For economic reasons, the vehicle manufacturer is free to</p>

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	<p>identify what frequency bands are applicable in the countries in which a vehicle will be marketed and which radio services are likely to be used in that vehicle.</p> <p>As an example, many vehicle models will probably not have a television receiver installed; yet the television bands occupy a significant portion of the radio spectrum. Testing and mitigating noise sources in such vehicles is not economically justified.</p> <p>The vehicle manufacturer should define the countries in which the vehicle is to be marketed, then choose the applicable frequency bands and limits. Component test parameters can then be selected from this standard to support the chosen marketing plan.</p> <p>The World Administrative Radio communications Conference (WARC) lower frequency limit in region 1 was reduced to 148,5 kHz in 1979. For vehicular purposes, tests at 150 kHz are considered adequate. For the purposes of this standard, test frequency ranges have been generalized to cover radio services in various parts of the world. Protection of radio reception at adjacent frequencies can be expected in most cases.</p> <p>Annex E defines artificial networks used for the measurement of conducted disturbances and for tests on vehicles in charging mode.</p> <p>Annex H defines a qualitative method of judging the degradation of radio communication in the presence of impulsive noise.</p> <p>Annex I defines test methods for shielded power supply systems for high voltage networks in electric and hybrid vehicles.</p> <p>Annex J defines methods for the validation of the ALSE and the reference ground plane used for component testing.</p> <p>Annex K lists work being considered for future revisions.</p>
b) Salient features of content:	NA
c) Types/grades/classes, if any covered in the standard:	NA
d) Disclaimer (to be automatically provided by the program/software)	NA