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Road vehicles — (EMC) guidelines for installation of aftermarket radio frequency transmitting equipment

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National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

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Véhicules routiers — Guide sur la compatibilité électromagnétique (CEM) pour l'installation en seconde monte d'équipements radio-téléphone

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

This second edition cancels and replaces the first edition (ISO/TS 21609:2003), which has been technically revised.

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Road vehicles — (EMC) guidelines for installation of aftermarket radio frequency transmitting equipment

1 Scope

This Technical Specification gives requirements and recommendations for the installation in road vehicles of

— radio frequency (RF) transmitting and receiving equipment,

— "in-road-vehicle" mounting kits for transportable and hand-held RF equipment, and

— ancillary equipment associated with these.

As well as methods for installation, it establishes methods for minimizing the possibility of electromagnetic interference (EMI) between the installed equipment and the vehicle electrical and electronic systems.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable to its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary (IEV)*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050 (all parts) and the following terms, definitions and abbreviated terms apply.

3.1.1
mobile equipment
receiver, transmitter or transmitter/receiver (transceiver) that is intended for installation and use in a vehicle, and powered by the main battery of the vehicle

3.1.2
ancillary equipment
any equipment required as part of the installation in addition to the radio

EXAMPLE Voltage converter

3.1.3
equipment supplier
supplier of the equipment to the installer

Note 1 to entry: The equipment supplier may be a dealer, distributor or manufacturer.

3.1.4
floating system
isolated ground return

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3.1.5
ground plane
conducting plane of a minimum dimension proportional to the wavelength λ on which a panel mount antenna is fitted

3.1.6
installer
radio equipment installation technician

3.1.7
radiating element
part of an antenna which radiates the signal

3.1.8
vehicle supplier
supplier of the vehicle, who may be a dealer or the manufacturer/importer of the vehicle

3.2 Abbreviated terms

ABS	anti-blocking system
CB	citizen band
ECU	electronic control unit
EMC	electromagnetic compatibility
EMI	electromagnetic interference
HT	high tension (i.e. the high voltage circuits of the ignition system)
ICE	in-car entertainment
PMR	private mobile radio
RF	radio frequency
RFI	radio frequency interference
VSWR	voltage standing wave ratio

4 General

Installation of RF-transmitting equipment shall be performed by competent personnel. The vehicle and RF transmitting equipment manufacturers' instruction manuals and installation notes shall be followed.

NOTE Vehicle manufacturer's instructions take priority in case of conflict.

It is the responsibility of the competent personnel to ensure the installation complies with national legal requirements for the installation and use of RF equipment in vehicles.

Installation shall be checked for possible interference between the RF-transmitting equipment and the vehicle electric systems in accordance with 6.3.

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