

Electromagnetic Compatibility (EMC) in Vehicles **– Directive 95/54/EC in the UK.**

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1. Introduction

Regulation 60(1C) of the Road Vehicle Construction and Use Regulations 1986 ('C & U'), which covers the electromagnetic compatibility of electrical or electronic equipment fitted to passenger cars after first registration, came into effect on 1 October 2002.

It appeared from the wording of this regulation that **all** equipment, even existing equipment moved from a used vehicle into a new or another used vehicle, would have to be "e-marked" to show its compliance with the requirements of Directive 95/54/EC after 1 October 2002, but this is not the case. After consultation with interested parties, the regulation has been changed so as to avoid this misunderstanding. See section 6 below.

This Regulation applies to equipment intended for installation in vehicles, but does not address the question of how that equipment is installed. Installation should be undertaken by qualified personnel and in line with vehicle and equipment manufacturer's instructions.

Directive 95/54/EC is one of the many 'separate Directives' that feed into the type approval regime which at the moment is compulsory across the entire EU for all passenger cars (motor cars with 9 or fewer seats) as 'whole vehicles'. The position on spare parts is slightly more complicated since, in the case of EMC, Member States are permitted to refuse the sale and entry into service of new ESAs ('electrical/electronic sub-assemblies') which do not comply with the requirements of the directive.

In the UK, we generally do not have a type approval regime for spare parts or assemblies which requires manufacturers as a matter of course to submit equipment for "e-marking", although type approval is available (see section 5 below) via the Vehicle Certification Agency.

In the UK, we regulate the safety and utility of vehicles and vehicle parts largely through the C & U Regulations, which specify technical standards. A criminal offence is committed by the user of the vehicle or of vehicle parts, and by the fitter and supplier, if components do not comply with the relevant regulation (ss 42 and 76 Road Traffic Act 1988).

Directive 95/54/EC specified in Article 2(5) that from 1 October 2002 new ESAs should be permitted to be sold or enter into service if, and only if, they comply with its requirements. This requirement does not affect existing ESAs. In addition, there is a specific provision in Article 2(6) which permits sale and entry into service of ESAs as components which are to be used as replacement parts for vehicle types approved before 1 January 1996.

Since whole vehicle type approval is mandatory only for passenger cars, the requirement for ESAs to meet 95/54/EC and the replacement spare part exemption will apply, in the UK, solely to passenger cars. Directive 95/54/EC was originally brought into effect by S.I. 1996 No. 2329 and the instrument which amended those changes is S.I. 2002 No. 2126 - The Road Vehicles (Construction and Use) (Amendment) (No. 3) Regulations 2002.

In view of the changes, the Department for Transport has issued this guidance note, which is not intended as a statement of law. Nor is it intended as an exhaustive guide to the application of all relevant legislation. ESAs are liable to be additionally covered by other Directives. For example, Directive 99/5/EC (covering Radio Equipment and Telecommunications Terminal Equipment (RTTE)) regulates the capability of radio equipment to use the radio spectrum without causing harmful interference and is administered by the Radiocommunications Agency (the RA), part of the Department of Trade and Industry (DTI).

Statutory Instruments are available from HMSO:

<http://www.legislation.hmso.gov.uk/stat.htm>

European Directives are available from EUR-Lex under "Legislation":

<http://europa.eu.int/eur-lex/en/index.html>

Further information can be obtained from VSE4.Enquiries@dft.gsi.gov.uk

2. Who is affected ?

Manufacturers of electrical or electronic parts or aftermarket accessories intended for fitment to vehicles after first registration, persons who install

these items in vehicles, operators of vehicle fleets and purchasers of these items are all affected and should familiarise themselves with the law.

Manufacturers of equipment.

Manufacturers should ensure that all relevant equipment which they produce complies with European Directive 95/54/EC on Automotive EMC, if necessary. See section 3.

Persons concerned with Installation of equipment

Installers should first of all be aware of whether the type of equipment that they are installing needs to be e-marked. See section 3.

Whether or not the equipment is required to be e-marked, it needs to be installed in accordance with equipment and vehicle manufacturer recommendations and any relevant Codes of practice, such that vehicle electronic systems are not put at risk. Specialist advice should be sought if there is any doubt on this.

Purchasers of equipment

Purchasers should ensure that any equipment they purchase is e-marked, if necessary – see section 3.

3. Which items need to be e-marked under the Automotive Directive 95/54/EC ?

As a general rule, ESAs (see section 4) intended for fitment to passenger cars must comply. ESAs intended ONLY for fitment to other types of vehicle (trucks or buses) do not have to comply in the UK.

ESAs intended for fitment to trucks and buses may be approved to 95/54/EC at the manufacturers option. Other European Union countries may require ESAs that are intended for fitment to trucks and buses to be approved. New ESAs which do not comply with the technical requirements of Directive 95/54/EC and are not e-marked may be refused sale or entry into service in other EU countries after 1 October 2002.

Equipment intended for fitment to motorcycles is covered by a different Directive, 97/24/EC Chapter 8, and thus is not subject to 95/54/EC. The requirements are in fact based on those in 95/54/EC. 97/24/EC states that new ESAs for motorcycles must comply from 17 June 2003. The UK are examining whether to implement this requirement, which would probably be by means of a Statutory Instrument.

Agricultural tractors are now covered by 75/322/EEC as amended by 2000/2/EC. The requirements are based on those in 95/54/EC. The UK does not mandate the EMC requirements in 75/322/EEC for ESAs intended for fitment to tractors.

Mobile machinery (for example mobile cranes, off-road construction plant) is not within the scope of 95/54/EC but falls under the General EMC Directive 89/336/EEC. Further information on this Directive can be obtained from the Department of Trade and Industry.

Under the Motor Vehicles (Authorisation of Special Types) General Order 1979 legislation (SI 1979 No. 1198, as last amended by SI 1998 No. 2249 and SI 1998 No. 2884), vehicles which are new or improved types constructed for tests or trials, or vehicles equipped with new or improved equipment, are exempt from certain of the Construction and Use Regulations, including Regulation 60, while they are being used for tests or trials. Therefore, prototype ESAs are not required to be e-marked.

4. What is an ESA ?

Typical examples are in-car entertainment equipment such as radios or CD players, accessories such as mobile phone car-chargers and spare parts such as ABS modules.

The definition of ESA (found in Directive 95/54/EC) does not, however, cover everything electrical or electronic found within a vehicle.

Equipment which meets one or more of the conditions below (4.1 to 4.7) is normally exempt from Directive 95/54/EC. But ESAs exempt under this Directive may still be required to meet other requirements, for example those contained in the 'General' EMC Directive 89/336/EEC or the RTTE Directive 1999/5/EC.

4.1 The equipment is not "intended for fitment to a vehicle".

This refers to the intention of either the manufacturer or the supplier of the equipment. If someone is using equipment such as a laptop computer or video camera, which is designed for domestic use, in a motor vehicle, since the equipment was NOT "intended for fitment to a vehicle" it will not have to comply with the new regulation.

Thus a private person modifying or installing electronic equipment in their own vehicle would not be required to obtain type approval. See **4.7** below.

However, equipment which falls within either of paragraphs (a) or (b) below, IS covered by this legislation:

a) Equipment which was not intended for fitment to a vehicle by the manufacturer, but nevertheless which is being installed in a vehicle or vehicles, by an organisation on a commercial basis. For example, a company installing computers in vehicles as a permanent fixture.

b) Equipment that is marketed on the basis that it is suitable for installation in a vehicle. For example, a "travel laptop" advertised as suitable for use in a car and perhaps provided with an adaptor to enable use of 12v supply.

4.2 The equipment is "Passive".

"Passive" equipment does not require approval. That means equipment that is not a semi-conductor, and by itself will not emit or be affected by electromagnetic emissions. This includes spark plugs and "passive" antennae. A spark plug only emits as part of an ignition system and it is the responsibility of the user to ensure that the spark plug is the correct type for the vehicle.

4.3 The equipment is only used in a stationary vehicle.

Equipment that is restricted such that it can only be used while the vehicle is incapable of moving, is exempt. This includes equipment such as a tyre inflator powered from the cigarette lighter. If the equipment is mains powered equipment installed in a command vehicle and intended to be powered by mains power or a generator, then it does not require approval because it cannot be used in the moving vehicle.

4.4 The equipment is not permanently fixed to the vehicle AND is self-powered.

Equipment which is not permanently fixed to the vehicle, in other words it can be removed without tools, is exempt if it does not use the vehicle power supply but has its own battery. For example, a handheld mobile phone.

4.5 The equipment is not permanently fixed to the vehicle and is powered using the vehicle power supply, but is connected by means of a separate interface that is approved to 95/54/EC.

Equipment which is not permanently fixed to the vehicle, and which is powered using the vehicle power supply, nevertheless is exempt if it is connected to the vehicle by means of a separate "interface" unit that is approved to 95/54/EC. This interface unit could be an adaptor or transformer, and would be tested with a representative piece of equipment connected to it. That means that an in-car charger for a mobile phone must be approved to the Directive but the mobile phone itself does not need approval. However it may require a CE mark according to other non-automotive legislation.

4.6 Vehicle manufacturers' spare parts, identical to those fitted as original equipment on production vehicles.

These parts, if they are identical to those fitted on the production line, are exempt, if they were included in a vehicle that has already been type approved to 95/54/EC.

Also, all spare parts intended for passenger cars which received type approval before 1 January 1996 are exempt.

4.7 "One-off" equipment.

95/54/EC is a type-approval Directive. This means that one item is tested as being representative of a particular "type" of product, and further items manufactured in line with the approved "type" may be sold without further testing. This does not cover the situation where one

unique item is produced by a person not normally engaged in the business of manufacturing electronic equipment for sale. Therefore, one-off equipment is not subject to 95/54 as the testing and administrative procedure is not appropriate .

This means that equipment which is installed in their own vehicle by persons who are able to demonstrate competence (for example radio amateurs) is exempt from 95/54. However equipment designed by a commercial producer for use by radio amateurs is not exempt.

5. How do I obtain approval ?

The UK Approval Authority for automotive approvals is the Vehicle Certification Agency (VCA) based in Bristol. However they do not have EMC test facilities, therefore testing may either be performed by a VCA authorised test house (Technical Service) or the VCA will witness the testing at an acceptable laboratory of your choice.

Some Technical Services are also Competent or Notified Bodies under other EMC legislation (e.g. 89/336/EEC) and therefore a test program can be devised to minimise testing for products subject to both sets of legislation.

For more details see <http://www.vca.gov.uk/publications/vca045.pdf>

6. What is "Legacy" equipment and does it need to be approved?

"Legacy" equipment means existing secondhand equipment, as of 1 Oct 2002. This includes all equipment that was sold as new equipment before 1 Oct 2002. Often this old equipment is transferred to new vehicles, such as sirens and light bars used by the emergency services.

This was the subject of a recent Consultation exercise by the DfT which resulted in an amendment to the Construction and Use Regulation 60. (Contained in SI 2002 No. 2126).

Legacy equipment is NOT now subject to 95/54/EC and may be installed in any vehicle, new or old, after 1 Oct 2002. However, this does not exempt the installer from exercising due care to ensure that installation does not compromise road safety.

Any new equipment that was sold after 1 Oct 2002, of a particular "type" that was already on sale before 1 Oct 2002, is NOT legacy equipment however and must be approved (if applicable).

7. Exemption for certain equipment used for surveillance purposes: amended paragraph 1(F)(b).

The UK implementation of 95/54/EC, under SI 2002 No. 2126, adds a new exemption from 95/54/EC for ESAs fitted to any vehicle under an

authorisation having effect under Part III of the Police Act 1997 (1997 c.50) or Part II of the Regulation of Investigatory Powers Act 2000 (2000 c.23).

These authorisations must be signed by Officers of a high rank, and are used to permit actions that are taken during the surveillance of individuals suspected of involvement in serious crime but which would otherwise be unlawful, because they typically involve intrusive covert surveillance. Thus equipment used in this type of operation is exempt from obtaining type approval to 95/54/EC. It is understood that it would be installed by a competent person.

This does NOT provide a blanket exemption from 95/54/EC for all equipment used by the law enforcement authorities.