Revision 1

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EUROVENT/CECOMAF RECOMMENDATION concerning the APPLICATION of the EMC DIRECTIVE for PACKAGED AIR CONDITIONERS

E U R O V E N T / C E C O M A F

**EUROPEAN COMMITTEE OF
AIR HANDLING, AIR CONDITIONING AND REFRIGERATION
EQUIPMENT MANUFACTURERS**

1. INTRODUCTION

1.1 Purpose

The European Directive 89/336/EEC concerning electromagnetic compatibility (EMC) is applicable from 1 January 1996. It applies for many products in the scope of EUROVENT/CECOMAF. In collaboration with two Competent Bodies for the EMC Directives, LCIE (France) and ASINEL (Spain), the present recommendation was prepared in order to help manufacturers of packaged air conditioners to solve some problems related to the application of this Directive. It will be valid as long as the Standards that it mentions are applicable.

1.2 Definition

Packaged air conditioner is an encased assembly designed for the delivery of cool or warm air to buildings for human occupation.

2. APPLICATION OF THE DIRECTIVE

2.1 Packaged Air Conditioners Installed by Professional Installers

Packaged air conditioners designed to be installed by professional installers are considered as units for professional use. The product family standards (EN 55014 and 55104) for household and similar appliances have to be applied. It should be noted that standards for Harmonics (EN 60555-2) and Voltage Fluctuations (EN 60555-3) are not applicable since they do not cover appliances for professional use.

Therefore EUROVENT/CECOMAF recommends that, in order to comply with the Essential Requirements for the EMC Directive, the units should be assessed in accordance with Table 1.

2 .2 Packaged Air Conditioners which may be Installed without Professional Installers

Packaged air conditioners which may be installed without professional installers (such as portable, portable split or some through window units) require in addition to the standards in Table 1 the application of the EN 60555-2 (Harmonics) and EN 60555-3 and Amendment 1 (Voltage Fluctuation).
However, due to some peculiarities of air conditioners, such as incorporated compressor that cycles on and off during operation, and relatively high compressor starting current, high capacity units might not be fullfilling the voltage fluctuation requirements.

Concerning this aspect the compliance with the Essential Requirements of the Directive shall be fulfilled since these products are not likely to cause any significant disturbance in the supply system as long as they are connected to a suitable low impedance power supply network. In addition past experience shows that no claim has been raised from the field for Voltage Fluctuations. The maximum allowed network impedance has to be recorded within the Technical Construction File.

Table 1 - Packaged air conditioners installed by a professional installer.

Emission EN 55014	Enclosure	Power disturbance EN 55014 (30 300 MHz)
	AC Mains	Conducted Emission Continuous voltage disturbance EN 55014 (150 KHz 30 MHz)
		Conducted Emission Discontinuous voltage disturbance (click) EN 55014 (150 KHz 30 MHz)
Immunity EN 55104	Enclosure	EN 61000-4-2 (8 kV air discharge 4 kV contact discharge)
		ENV 50140 (80 MHz 1000 MHz, 3V/m, 80 % Am modulated)
	Signal and control lines; input and output d.c. power ports	EN 61000-4-4 (0,5 kV peak) ENV 50141 (0,15 230 Mhz, 1V rms, 80 % Am modulated)
	Input and output a.c. power ports	EN 61000-4-4 (1 kV peak) ENV 50141 (0,15 230 Mhz, 3V rms, 80 % Am modulated)
	Surges	EN 61000-4-5 (2 kV common mode, 1 kV differential mode)
	Voltage dips and interruptions	EN 61000-4-11 (0 % /0,5 periods, 40 %, 10 periods, 70 %, 50 %)

Equipment may be classified into category I (devices not including an electronic control circuitry), category II and IV (devices that does) according to the EN 55104 Standard. Devices into category I are deemed to fulfil the relevant immunity requirements without testing.

Not all the test apply to all the products: refer to EN 55104 for details.

For the immunity EN 50082-1 may be used instead of EN 55104 for products already in the market till 1st July 1997.

3. INSTALLATION INSTRUCTIONS

It is recommended to add the following sentences in the installation manual:

- the unit must be installed in accordance with applicable national and local regulations.
- the unit installed by a professional installer must be supplied from a dedicated electrical circuit.

4. CONTENT OF THE TECHNICAL CONSTRUCTION FILE

The Technical Construction File is only accessible to competent authorities on justified request. It has to be kept during 10 years and should contain at least the following information:

1. General Description (name, model, function, etc)
2. Technical Description (overall system block diagram, interconnection with other equipment, etc)
3. Technical Rationale (design feature related to EMC aspects, test data, method of assessment, theoretical modelling)
4. Statement of compliance.
5. Copy of the present EUROVENT/CECOMAF Recommendation

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