



**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
System Reference Document;
Short Range Devices (SRD);
Radar sensors for non-automotive; ground based vehicular
applications in the 76 GHz to 77 GHz frequency range**

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document includes necessary information to support the co-operation under the MoU between ETSI and the Electronic Communications Committee (ECC) of the European Conference of Postal and Telecommunications Administrations (CEPT).

Executive summary iTeh Standards

The present document describes the radar based surveillance applications in the 76 GHz to 77 GHz for non-automotive ground based vehicular / mobile applications which in most cases are safety related.

A high number of accidents in the public transportation area (trains and trams) or with construction/off road vehicles need an increase in the safety in these areas. Information on accidents is described in annex A.

The 76 GHz radar technology as realized in EN 301 091 [i.1] is also suitable for applications in rail, maritime, construction, agriculture, leisure vehicles, unmanned vehicles and ground transportation. The automotive radars provide safety features and have reached a high penetration. The penetration will further increase significantly with the introduction of radars not only in higher but also in lower class cars.

The coexistence for all mobile ground based vehicular applications in the 76 GHz to 77 GHz can be based on the mitigation / sharing mechanisms between automotive radars. Such automotive mitigation techniques are studied in a European funded project, called MOSARIM [www.mosarim.eu]. The results of the project and the automotive industries implementation of mitigation / sharing techniques for their systems will be reflected in an future update of the related ETSI standards, like EN 301 091 [i.1].

Introduction

ETSI has created a number of Harmonized Standards under the R&TTE Directive [i.19] for automotive radar systems for different applications e.g. for the frequency bands of 24 GHz, 5,8 GHz, 63 GHz, 76 GHz and 79 GHz.

The 76 GHz RTTT Standard EN 301 091 [i.1], defining the technical characteristics and test methods for radar equipment operating in the 76 GHz to 77 GHz band, was among the first ones and published in June 1998. Its scope limits the application to automotive radar equipment.

The 76 GHz to 77 GHz automotive range radar technology is very versatile and can be used also for safety relevant applications e.g. non-road applications which are the subject for the present document.