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Technical Specification

Electromagnetic compatibility and radio spectrum matters (ERM); The specification and implementation of design changes to interrogators and specification of the test plan for the Preliminary Tests and the Trial; Modification of interrogators and specification of test plans for the Preliminary Tests and Trial

Reference
RTS/ERM-TG34-312

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Foreword

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

Introduction

In order to accommodate the spectrum needs for the increasing number of RFID devices and systems, an extension band for high power RFID systems in the range between 915 MHz and 921 MHz has been requested. This band is already used by RFID in several countries worldwide and its designation in Europe would increase its functionality and simplify the international movement of goods using RFID identification systems. In Europe, a part of this new frequency band has to be shared between the primary user ER-GSM and RFID. In order to guarantee an interference-free coexistence between the two systems, mechanisms have to be implemented by RFID systems to reduce the probability of interference to an acceptable minimum. These techniques can be either of regulatory, technical or operational nature.

The present document includes a description of the modifications made to the hardware and software of two UHF RFID interrogators in order to implement demonstrators with the Detect And Avoid (DAA) technique defined in TS 102 902 [i.1] and TS 102 903 [i.2]. In addition a specification of acceptance tests for the modified interrogators is provided.

1 Scope

The present document specifies the practical implementation of the DAA mitigation technique for UHF RFID systems sharing the band 918 MHz to 921 MHz with ER-GSM. It covers the required modifications to UHF RFID interrogators as well as the subsequent acceptance tests. The purpose of the modified interrogators, (also called demonstrators) is to validate a subset of the mitigation techniques specified in [i.1] and [i.2]. The present document only covers the design modification and acceptance tests.

The system tests carried out together with ER-GSM will be covered in TR 101 602 [i.7].

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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2.1 Normative references

The following referenced documents are necessary for the application of the present document.

[1] ETSI EN 302 208 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W".

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI TS 102 902: "Electromagnetic compatibility and radio spectrum matters (ERM); Methods, parameters and test procedures for cognitive interference mitigation towards ER-GSM for use by UHF RFID using Detect-And-Avoid (DAA) or other similar techniques".

[i.2] ETSI TS 102 903: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Compliance tests for cognitive interference mitigation for use by UHF RFID using Detect-And-Avoid (DAA) or other similar techniques".

[i.3] EIRENE System Requirements Specification Version 15.1.

[i.4] ETSI TS 144 018: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol (3GPP TS 44.018 version 10.6.0 Release 10)".

[i.5] ETSI TR 102 649-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics of Short Range Devices (SRD) and RFID in the UHF Band; System Reference Document for Radio Frequency Identification (RFID) and SRD equipment; Part 2: Additional spectrum requirements for UHF RFID, non-specific SRDs and specific SRDs".

[i.6] ISO/IEC 18000-6:2010: "Information technology -- Radio frequency identification for item management -- Part 6: Parameters for air interface communications at 860 MHz to 960 MHz".