



**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**

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Contents

Intellectual Property Rights	5
Foreword.....	5
Introduction	6
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references.....	7
3 Definitions, symbols and abbreviations	8
3.1 Definitions.....	8
3.2 Symbols.....	9
3.3 Abbreviations	9
4 UHF RFID deployment scenario.....	10
4.1 Introduction	10
4.2 Frequency plan	10
4.3 Basic operational principal of RFID technology	12
4.3.1 Introduction.....	12
4.3.2 Characteristics of RFID at UHF	12
4.3.2.1 Antennas	13
4.3.2.2 Data Rates	13
4.3.2.3 Intermodulation Products.....	14
4.3.2.4 De-tuning and absorption.....	14
4.3.2.5 Shielding	15
4.3.2.6 Transparent materials.....	15
4.4 Static deployment scenario.....	16
4.4.1 Overview	16
4.4.2 RFID equipped portal system	16
4.4.3 Packing table.....	17
4.4.4 Point of sales system (PoS).....	18
4.4.5 Industrial applications.....	20
4.5 Dynamic deployment scenario	21
4.5.1 Introduction.....	21
4.5.2 Hand held readers	21
4.5.3 Vehicle mounted readers	22
5 ER-GSM 900 system deployment scenario and protection criteria	22
5.1 Introduction	22
5.2 Frequency plan	22
5.3 Basic operational principle	23
5.4 Signal Formats.....	23
5.5 Information contained in the BCCH.....	24
5.6 Deployment scenarios	25
5.7 Summary	27
6 Mitigation techniques	27
6.1 Introduction	27
6.2 Site licensing	29
6.3 Service area detection (DL detection)	29
6.4 Victim terminal detection (UL Detection).....	31
6.4.1 Considerations	31
6.4.2 Realization	32
7 Summary and Conclusion	32
Annex A (informative): Future requirements for RFID	34

A.1	General	34
A.2	RFID applications	34
A.3	Technical Radio Spectrum requirements and justification.....	34
A.3.1	Current regulations for RFID	34
Annex B (informative):	Detailed market information - Market size, Applications and requirements.....	36
Annex C (informative):	Technical information	37
C.1	RFID.....	37
C.1.1	Performance requirements from leading RFID manufacturers and users.....	37
C.1.2	Power.....	37
C.1.3	Bandwidth	37
Annex D (informative):	Avoidance options	39
D.1	Introduction	39
D.2	Transmit power management	39
D.3	Band relocation	39
D.4	LDC.....	39
D.5	Antenna techniques	40
D.6	Combinations	40
D.7	Avoidance parameters	40
D.7.1	Minimum avoidance bandwidth.....	40
D.7.2	Maximum avoidance power level	40
Annex E (informative):	Mitigation zone definition	41
E.1	Introduction	41
E.2	Required Isolation	41
E.3	Protection distances.....	42
E.3.1	Non specific RFID systems (Portal Systems).....	42
E.3.2	Indoor RFID systems (Handheld Systems)	42
E.3.3	Indoor low power RFID systems (PoS, Packaging Table)	43
Annex E (informative):	Bibliography.....	44
History		45

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Foreword

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

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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 frequency range between 915 MHz and 921 MHz is under discussion. This band is already used by RFID in several countries worldwide and its availability in Europe would simplify the global movement of tagged goods. In Europe, part of this new frequency band will 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 on the RFID side to reduce the probability of interference to a minimum. These mechanisms can be regulatory, technical mechanisms or operational restrictions.

The present document proposes a set of these mechanisms which, together with the necessary parameters, will avoid interference with the ER-GSM system in the frequency band 918 MHz to 921 MHz. In addition to the main goal of reducing the potential for interference with ER-GSM, the overall achievable performance of RFID systems should be optimized. The main strategy adopted in the present document has been to split the task into phases with three different time horizons:

- Short term solution for the next 1 to 3 years;
- Mid term solutions for the coming 3 to 6 years; and
- Long term solutions for a stable deployment of RFID systems in the shared bands.

This strategy will allow for the fast implementation of initial systems in the band without having to wait for the full implementation of the final solution. Some of the proposed techniques will be based on software upgrades of existing systems and only the mechanisms for the long term solution will require additional hardware and the implementation of new reader systems. On the other hand the long term solution will use all available mechanisms and procedures and thus will guarantee the best performance.

The values used in the present document are working assumptions and therefore these values have to be verified in practical measurements and adapted to the state of the art technology.

The present document will be complemented by TS 102 903 [i.11], which will include the results of an initial practical evaluation of the proposed mechanisms, and a description of the test procedures necessary for verifying the compliance of RFID devices and systems.

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