



Reconfigurable Radio Systems (RRS); Use Cases for spectrum and network usage among Public Safety, Commercial and Military domains

Document Preview

[ETSI TR 102 970 V1.1.1 \(2013-01\)](https://standards.iteh.ai/catalog/standards/etsi/53cda130-2aaa-47ee-b38e-1d15330c77ae/etsi-tr-102-970-v1-1-1-2013-01)

<https://standards.iteh.ai/catalog/standards/etsi/53cda130-2aaa-47ee-b38e-1d15330c77ae/etsi-tr-102-970-v1-1-1-2013-01>

Reference

DTR/RRS-04009

Keywords

radio, safety, system

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

(<https://standards.iteh.ai>)
Document Preview

Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

http://portal.etsi.org/chaicor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2013.
All rights reserved.

DECTTM, PLUGTESTSTM, UMTSTM and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.
3GPPTM and LTETM are Trade Marks of ETSI registered for the benefit of its Members and
of the 3GPP Organizational Partners.
GSM[®] and the GSM logo are Trade Marks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	5
Foreword.....	5
Introduction	5
1 Scope	6
2 References	6
2.1 Normative references	6
2.2 Informative references.....	6
3 Definitions and abbreviations.....	7
3.1 Definitions	7
3.2 Abbreviations	8
4 Relevant input from other organizations	9
4.1 Organizations	9
4.1.1 ETSI Technical Committee (TC) TERrestrial Trunked Radio TETRA.....	9
4.1.2 Public Safety Communication Europe (PSCE).....	10
4.2 Projects.....	10
4.2.1 EULER project	10
4.2.2 COGEU project	10
4.2.3 IMSK project	10
4.2.4 EDA CORASMA	10
4.2.5 HELP project	11
5 Network and Spectrum sharing concepts	11
5.1 Network sharing	11
5.2 Spectrum sharing.....	12
6 Operational scenarios	12
6.1 Routine Operations.....	12
6.2 Emergency Crisis	12
6.3 Major Event.....	13
6.4 Natural disaster.....	13
6.5 Search and Rescue.....	13
7 Taxonomy of network and spectrum sharing use cases	14
7.1 Introduction	14
7.2 Definition of the stakeholders	14
7.3 Network Sharing Use Cases	15
7.3.1 User organizations sharing the same network: only one network operator is in charge of the network management and communication services provisioning.....	15
7.3.2 User organizations sharing the same network: several network operators are in charge of network management and communication services provisioning in the shared network	15
7.3.3 Several user organizations sharing the same network. The home network of some of the users is not the shared network	16
7.3.4 Conclusions on network sharing scenarios	17
7.4 Spectrum Sharing Use Cases.....	21
7.4.1 Introduction.....	21
7.4.2 Taxonomy of stakeholders and spectrum allocations.	22
7.4.3 Dynamic transfer of exclusive rights of use.....	24
7.4.3.1 Dynamic transfer of exclusive rights of use between commercial and public safety domains	24
7.4.3.2 Dynamic transfer of exclusive rights of use between military and non-military domains	24
7.4.4 Secondary access	25
7.4.4.1 Secondary access based on coordination mechanisms	25
7.4.4.2 Secondary access based on coexistence mechanisms	25
7.4.5 Collective use of spectrum.....	26
7.4.5.1 Collective use of spectrum based on coordination mechanisms	26

7.4.5.2	Collective use of spectrum based on coexistence mechanisms	26
7.4.6	Conclusions on spectrum sharing scenarios.....	26
8	Potential operational and technical requirements	29
8.1	Introduction	29
8.2	Potential Functional Requirements.....	30
8.2.1	Prioritisation requirements.....	30
8.2.2	Interoperability and interworking requirements.....	30
8.2.3	Resource management requirements	31
8.3	Non-functional requirements.....	31
8.3.1	Availability	31
8.3.2	Security	32
8.3.3	Usability.....	32
9	Conclusions	32
	History	34

iTeh Standards

(<https://standards.iteh.ai>)

Document Preview

[ETSI TR 102 970 V1.1.1 \(2013-01\)](#)

<https://standards.iteh.ai/catalog/standards/etsi/53cda130-2aaa-47ee-b38e-1d15330c77ac/etsi-tr-102-970-v1-1-1-2013-01>

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://ipr.etsi.org>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Reconfigurable Radio Systems (RRS).

Introduction

The present document provides a study of the use cases for network and spectrum sharing among Public Safety (PS), Commercial and Military domains.

The capability of exchanging information (e.g. voice or data) is essential to improve the coordination of public safety officers during an emergency crisis. Wireless communications are particularly important in field operations to support the mobility of first responders. While in their routine service, the operators may have learned to work around the shortcomings of their communication systems, the situation changes dramatically when an emergency causes additional stress for the system and the operators. Emergency scenarios usually lead to exceptionally high traffic loads, which the existing wireless communication systems may not be able to support. This situation can be worsened in scenarios with limited radio coverage (e.g. a truck accident in a tunnel) or when parts of the communications infrastructures are damaged in the incident area. Sharing of network and spectrum can increase the traffic capacity, provide higher coverage and improve the connectivity availability.

The present document investigates the potential use cases for network and spectrum sharing among the public safety, commercial and military networks. The potential benefits, feasibility and related technical challenges are identified for each use case.

In the present document, the identification of the use cases for network and spectrum sharing is only aimed to non-mission critical applications.