ETSI TR 103 064 V1.1.1 (2011-04)

Technical Report

Reconfigurable Radio Systems (RRS); Business and Cost considerations of Software Defined Radio (SDR) and Cognitive Radio (CR) in the Public Safety domain

ETSI

Reference
DTR/RRS-04007

Keywords
radio, safety

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

ETSI

Contents

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://webapp.etsi.org/IPR/home.asp).

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 business and cost considerations for the deployment of Software Defined Radio and Cognitive Radio technologies (i.e. RRS technologies) in the Public Safety domain.

While RRS technologies can provide significant benefits and improve the operational capabilities of public safety organizations, their implementation and deployment may be heavily dependent on cost trade-offs. Business and cost considerations are common to all telecommunications markets, but there are significant differences between public safety domain and the commercial domain. One difference is that funding for Public Safety organizations is usually decided at political/government level and budget for new radio equipment may be limited or approved in specific timeframes. Another difference is that radio equipment used by Public Safety organizations has usually a longer lifecycle than a commercial domain. It is not uncommon the deployment of dedicated networks for 10-15 years of service. The different operational requirements for security, availability and reliability have also a considerable impact on the cost of communication equipment.

All these considerations may drive the evolution of communication technology in the Public Safety domain.

The present document describes the business and cost drivers, the potential evolution paths, the main specific features of the Public Safety radio equipment and the potential economical benefits of RRS technologies.

1 Scope

The current trend in Public safety communications today are characterized by a patchwork of separate, sometimes incompatible systems (e.g. TETRA and TETRAPOL) with widely varying capabilities in communicating between and amongst systems and user radios. Another key challenge is the lack of broadband connectivity to support the operational capabilities of Public Safety responders. Software Defined Radio (SDR) and Cognitive Radio (CR). technologies, here collectively described as RRS technologies can be a key component to improve the interoperability and to increase the flexibility and ability to public safety communications.

The scope of the present document is to investigate the business and cost considerations in the application of SDR and CR to the Public Safety domain. In particular the present document presents:

- the impact of SDR/CR technologies on the lifecycle cost model for public safety communication equipment.

- identification of the benefits or disadvantages of SDR/CR technologies, from an economical point of view, in comparison to conventional (but already digital) communication systems.

- definition of a business model able to develop the capabilities offered by SDR/CR adoption and to lower the life cycle costs associated with SDR/CR introduction.

- Definition of a cost model for SDR/CR technologies in Public Safety.

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.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

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

Not applicable.

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] Public Safety Radio System Cost Model. SDRF-09-P-0001-V1.0.0. Wireless Innovation Forum (ex SDR Forum). Approved 21 April 2009.

NOTE: Available at http://www.wirelessinnovation.org. Last accessed 21/01/2011.

[i.2] "TETRA versus GSM for Public Safety".

NOTE: Available in the reports section in http://www.tetra-association.com/uploadedFiles/Files/Documents/TETRAorGSMinPS.zip.

[i.3] ETSI TR 102 745: "Reconfigurable Radio Systems (RRS); User Requirements for Public Safety".

[i.4] ETSI TR 102 680: "Reconfigurable Radio Systems (RRS); SDR Reference Architecture for Mobile Device".