

Reconfigurable Radio Systems (RRS); Multiradio Interface for Software Defined Radio (SDR) Mobile Device Architecture and Services

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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
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Foreword

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

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1 Scope

The present document is a study item that can be used in the normative process within ETSI TC RRS, when defining normative system requirements, architecture, and interfaces for Mobile Device (MD) Software Defined Radio (SDR).

The TR 102 680 [i.1] presents a reference architecture for Software Defined Radio (SDR) mobile devices from a *radio computer* viewpoint. Such a device can run radio applications on shared platform resources, and install new ones even during run-time, much like a personal computer with regular computer programs. The reference architecture details the internals of a possible mobile device SDR subsystem, but is not meant to be a normative architecture. Instead, it identifies various key interfaces that may be generalized in order for the multiradio computer vision to be realized. These interfaces may be normative.

SDR can be on one hand considered as an implementation technology that replaces legacy ASICs when suitable cost and power tradeoffs can be found; this track is not in the scope of ETSI TC RRS. On the other hand, SDR can be considered as an enabling technology for Cognitive Radio (CR) systems. It is in the scope of ETSI TC RRS to define the responsibilities of various subsystems in a complete CR system. The TR 103 062 [i.2] lists high level use scenarios for SDR based mobile devices, to be used in this process.

The two approaches meet at the interface to the SDR subsystem. This is called the Multiradio Interface (MURI) in the reference architecture. The purpose of this technical report is to outline the functionality at this interface, both from SDR technology and CR system perspectives. The use scenarios are analyzed first, in order to partition the responsibilities between the SDR subsystem and the CR entities on top of it. Then the SDR subsystem is taken a deeper look, based on TR 102 680 [i.1] and technology deployment scenarios. Finally the MURI functionality is sketched from these basis.

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.

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] ETSI TR 102 680: "Reconfigurable Radio Systems (RRS); SDR Reference Architecture for Mobile Device".
- [i.2] ETSI TR 103 062: "Reconfigurable Radio Systems (RRS) Use Cases and Scenarios for Software Defined Radio (SDR) Reference Architecture for Mobile Device".
- [i.3] IEEE 802.11: "Standard for Information Technology-Telecommunications and Information Exchange Between Systems-Local and Metropolitan Area Networks-Specific Requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".