STANDARDISATION FOR RECONFIGURABLE RADIO SYSTEMS: WHERE WE ARE


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A great collaboration framework!

ETSI TC RRS Working Directions and Status

Next Steps & Conclusions
A great collaboration framework!

I. A great collaboration framework!
Let’s start by learning a beautiful German word....

„Selbstbeweihräucherung“

Approximate translation: „to burn incense for yourself“, i.e. to praise your own case
Example 1: EC Mandate M/512 and TC RRS
EC Mandate M/512

- EC Mandate M/512 on RRS is providing “political trigger”:

  - Objective A: In the area of commercial applications, to enable the deployment and operation of cognitive radio systems (CRS) ... under Licensed Shared Access regime, dependent ... from geo-location databases (GLDB).
• A direct cooperation between ETSI and CEPT makes it possible to prepare the readiness of key markets;
• In particular, CEPT WG FM is/was active on

• PT52: “… The Project Team shall: develop a draft ECC Decision, aimed at harmonising implementation measures for MFCN (including broadband wireless access systems) in the frequency band 2300-2400 MHz…”
• PT53: “… The Project Team shall handle the following tasks: … Develop an ECC Report on general conditions, including possible sharing arrangements and band-specific (if not dealt with by a specific project team) conditions for the implementation of the LSA that could be used as guidelines for CEPT administrations. …”
In close alignment with CEPT WG FM and in response to EC Mandate M/512, TC RRS (has) develops(/ed) LSA related deliverables:

- System Reference Document (SRdoc); Mobile broadband services in the 2 300 MHz – 2 400 MHz frequency band under Licensed Shared Access regime;

- TS 103 154 - System requirements for operation of Mobile Broadband Systems in the 2300 MHz - 2400 MHz band under Licensed Shared Access (LSA) regime.

- TS 103 235 - System Architecture and High Level Procedures for operation of Licensed Shared Access (LSA) in the 2300 MHz-2400 MHz band
Example 2: RED (Revision R&TTED) and TC RRS
Article 3(3)(i):
3. Radio equipment within certain categories or classes shall be so constructed that it complies with the following essential requirements:
   (i) radio equipment supports certain features in order to ensure that software can only be loaded into the radio equipment where the compliance of the combination of the radio equipment and software has been demonstrated.

Article 4: Provision of information on the compliance of combinations of radio equipment and software
1. Manufacturers of radio equipment and of software allowing radio equipment to be used as intended shall provide the Member States and the Commission with information on the compliance of intended combinations of radio equipment and software with the essential requirements set out in Article 3. Such information shall result from a conformity assessment carried out in accordance with Article 17, and shall be given in the form of a statement of compliance which includes the elements set out in Annex VI. Depending on the specific combinations of radio equipment and software, the information shall precisely identify the radio equipment and the software which have been assessed, and it shall be continuously updated.
2. The Commission shall be empowered to adopt delegated acts in accordance with Article 44 specifying which categories or classes of radio equipment are concerned by the requirement set out in paragraph 1 of this Article.
In close cooperation with Regulation Administrations (in particular Bundesnetzagentur, Germany), key challenges have been identified for Mobile Device Certification solutions in such a reconfiguration context. ETSI RRS develops corresponding reports and specifications:

- TR 102 967 - Use Cases for dynamic equipment reconfiguration
- TS 103 094 - Dynamic Certification related System Requirements
Radio Equipment Directive (RED)

- TC RRS also addresses technical standards for Mobile Device reconfiguration related Architectures and Interfaces:
  - TR 103 062: Definition of refined Scenarios and Use Cases for Software Defined Radio (SDR) Reference Architecture for Mobile Device
  - TR 102 839: Multiradio Interface for SDR Mobile Device Architecture and Services
  - TR 102 944: Use Cases for baseband interfaces for unified radio applications of mobile device
  - TS 102 969: Radio Reconfiguration related Requirements for Mobile Devices
  - TS 103 095: Radio Reconfiguration related Architecture for Mobile Devices
  - TS 103 146-1: Mobile Device Information Models and Protocols; Part1: Multiradio Interface (MURI)
  - EN 302 969: Radio Reconfiguration related Requirements for Mobile Devices
  - Draft EN 303 095: Radio Reconfiguration related Architecture for Mobile Devices
  - Draft EN 303 146-1: Mobile Device Information Models and Protocols; Part1: Multiradio Interface (MURI)
  - Draft TS 103 146-2: Mobile Device Information Models and Protocols; Part2: RRFI
II. ETSI TC RRS Working Directions and Status
• The committee has focused on Reconfigurable Radio Systems Technology.
• The committee’s activities include studies on the feasibility of RRS standardization, collecting and defining RRS requirements, identifying gaps where existing standards do not fulfill those requirements and proposing solutions to fill those gaps.
**TC RRS – Currently open WIs**

- **WG1: RRS System Aspects**
  - TR 101 571: Feasibility Study for coexistence between CRS and RF Cable Networks
  - TS 103 143: System architecture for information exchange between different Geo-location Databases (GLDBs) enabling the operation of White Space Devices (WSDs)
  - EN 303 144: Enabling the operation of Cognitive Radio System (CRS) dependent for their use of radio spectrum on information obtained from Geo-location Databases (GLDBs); Parameters and procedures for information exchange between different GLDBs
  - TS 103 145: System Architecture and High Level Procedures for Coordinated and Uncoordinated Use of TV White Spaces
  - TS 103 235: System Architecture and High Level Procedures for operation of Licensed Shared Access (LSA) in the 2300 MHz-2400 MHz band
  - EN 303 387-1: Signalling Protocols and information exchange for Coordinated use of TV White Spaces; Part 1: Interface between Cognitive Radio System (CRS) and Spectrum Coordinator (SC)
TC RRS – Currently open WIs

- **WG2: Reconfigurable Radio Equipment Architecture**
  - EN 303 146-1: Mobile Device Information Models and Protocols; Part1: Multiradio Interface (MURI)
  - TS 103 146-2: Mobile Device Information Models and Protocols; Part2: RRFI
  - EN 303 095: Radio Reconfiguration related Architecture for Mobile Devices
  - EN 302 969: Radio Reconfiguration related Requirements for Mobile Devices

- **WG3: RRS Security, Certification and Declaration of Conformity**
  - TR 103 087: Security related use cases and threats in Reconfigurable Radio Systems
  - TS 103 094: Dynamic Certification related System Requirements

- **WG4: Civil Security and Inter-Domain Synergies**
  - TR 103 217 Synergies between civil security, military and commercial domains
III. Next Steps & Conclusions
Next Steps & Conclusions

• TC RRS is well positioned for driving Reconfigurable Radio Systems Technologies on a global scale;
  • TC RRS is indeed globally positioned by organizing meetings on different continents in order to attract local participation, e.g. Chengdu (China), Saint Petersburg (Russia), Santa Clara (US), Montreal (Canada), and soon Seoul (Korea), etc.

• TC RRS will continue driving its Working Programme while monitoring related activities in other SDOs (IEEE, 3GPP, etc.)

• Upcoming meetings are scheduled as follows:

<table>
<thead>
<tr>
<th>TC/WG</th>
<th>Date</th>
<th>Location, Host</th>
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<tbody>
<tr>
<td>RRS#29+WG meeting</td>
<td>16-20 March 2015</td>
<td>Portugal</td>
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<tr>
<td>RRS#30+WG meeting</td>
<td>1-5 June 2015</td>
<td>Seoul (Korea), Hanyang University</td>
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<tr>
<td>RRS#31+WG meeting</td>
<td>14-18 September 2015</td>
<td>Sophia Antipolis, ETSI</td>
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<tr>
<td>RRS#32+WG meeting</td>
<td>30-Nov – 4 December 2015</td>
<td>Mainz, BNetza</td>
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