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Technical Report

**Reconfigurable Radio Systems (RRS);
Definitions and abbreviations**

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Foreword

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

Introduction

The present document defines the basic definitions and abbreviations as required by ETSI Technical Committee Reconfigurable Radio Systems (RRS) to produce RRS deliverables.

The purpose of the present document is primarily to give guidance to the rapporteurs in the preparation of their documents, and to assist the usability of these documents through the use of consistent terminology. Furthermore it is intended to align, as far as possible, the definitions and abbreviations with the corresponding ones from ITU and make them available within ETSI for other Technical Committees, membership and clients.

The definitions and abbreviations given are not intended to be exclusive. Other definitions and abbreviations different from those given here may be found in some documents produced by TC RRS. However, the definitions given in the present document are generally to be preferred.

1 Scope

The scope of the present document is to provide definitions and abbreviations as they are used in deliverables prepared by the ETSI RRS Technical Committee.

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] Report Recommendation ITU-R SM.2152 (2009): "Definitions of Software Defined Radio (SDR) and Cognitive Radio System (CRS)".

> [i.2] ETSI TS 125 304: "Universal Mobile Telecommunications System (UMTS); User Equipment (UE) procedures in idle mode and procedures for cell reselection in connected mode (3GPP TS 25.304)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

application processor: part of mobile device hardware working under OS control and on which User Applications, among others, are executed

baseband interface: interface consisting of a Radio Application Interface (RAI) and a Context Information Interface (CII)

> NOTE: RAI is for baseband signal processing and CII is for transferring the context information to monitor. BBI includes:
>
> 1) function block definition of radio application;
>
> 2) interface among the function blocks;
>
> 3) interface between RC and each of corresponding function block(s).

camping on a cell: having completed the cell selection/reselection process and having chosen a cell

NOTE 1: In the framework of 3GPP, this term is defined in TS 125 304 [i.2] as follows: "*UE has completed the cell selection/reselection process and has chosen a cell. The UE monitors system information and (in most cases) paging information*".

NOTE 2: In addition to the context defined in 3GPP, the term "Camping" is here also used in the context of any type of association to any other wireless system, such as WiFi, etc.

cognitive control channel: distributed approach for real time communication between different CRS nodes in a specific geographical area

NOTE 1: Cognitive control channel may enable different CRS nodes to exchange information related to coexistence, generic spectrum usage rules or policies and/or specific capabilities and needs of different nodes. The information communicated on cognitive control channel may include, among other things, spectrum etiquette, rules for accessing specific bands, local availability of different bands, sensing information, available applications, or spectrum needs of different systems.

NOTE 2: Typically, a cognitive control channel is implemented as a logical channel between nodes belonging to a same cognitive control network.

cognitive control network: network of nodes in different cognitive radio networks communicating with each other for controlling the frequency agile behaviour among the set of cognitive radio networks

cognitive control radio: radio (technology) designed to carry cognitivity control informaton between cognitive control network nodes

cognitive pilot channel: channel which conveys the elements of necessary information facilitating the operations of Cognitive Radio Systems

cognitive radio: radio, which has the following capabilities:

- to obtain the knowledge of radio operational environment and established policies and to monitor usage patterns and users' needs;

- to dynamically and autonomously adjust its operational parameters and protocols according to this knowledge in order to achieve predefined objectives, e.g. more efficient utilization of spectrum; and

- to learn from the results of its actions in order to further improve its performance.

cognitive radio system: radio system employing technology that allows the system to obtain knowledge of its operational and geographical environment, established policies and its internal state; to dynamically and autonomously adjust its operational parameters and protocols according to its obtained knowledge in order to achieve predefined objectives; and to learn from the results obtained

NOTE: This is the current definition as given is [i.1].

communication services layer: layer related to communication services supporting generic applications

NOTE: Communication services layer supports generic applications like Internet access. In the present document, it consists of Administrator, Mobility Policy Manager (MPM), Networking stack and Monitor.

configcodes: result of compiling source codes of Radio Application (RA), which is either configuration codes of Radio Virtual Machine (RVM) or executable codes for a particular target platform

NOTE: In the case when RA provider makes a high level code based on a target platform, a result of compiling RA source codes is configcodes which is executable on the target platform. In the other case, when RA provider makes a high level code without considering a target platform, a result of front-end compiling of RA source codes is Intermediate Representation (IR) which should be back-end compiled for operating on a specific target platform.

context information: cross-technology context information

NOTE 1: The availability and selected inherent operational parameters of heterogeneous Radio Access Technologies (RATs) is an example.

NOTE 2:   The term does not address 3GPP specific context information which is assumed not to be available for the SDR Reference Architecture inherent decision making.

digital dividend: "leftover" frequencies resulting from the change of TV broadcasting from analogue to digital transmission schemes.

driver: set of software components that includes installer, loader, back-end compiler or full compiler (if necessary), standard function block pool (if necessary), and any other components needed for setting up and running radio application(s)

NOTE: A driver provides the following functions as well:

1)   enabling RC, which operates in application processor mostly in non real-time, to access each of corresponding function block(s) operating in baseband processor in real-time;

2)   back-end compiler for translating platform-independent IR into vendor assembly in the case of using platform independent IR for user defined function block;

3)   full compiler for compiling source code into vendor assembly in the case of using source code for user defined function block;

4)   installer for storing radio application package to storage device such as flash memory;

5)   loader for loading RC code to application processor; and

6)   loader for loading function block(s) code to baseband processor.

A driver which is provided by a modem chip manufacturer is prepared in application processor and includes standard function blocks needed for the configuration of various radio applications. During the configuration of radio application, RC is loaded in application processor and standard function blocks and user defined function blocks are loaded in baseband processor in accordance with the contents of metadata. It particularly means that Driver includes two loaders: one is to load RC in application processor and the other is to load the function blocks in baseband processor. Although there are varieties of modem chip vendors each of which has its own architecture and functioning in baseband processor, the RC which operates in application processor can access each of corresponding function block(s) in baseband processor using the driver which is provided in compliance with BBI by the modem chip vendor.

function block: each modem function needed for real-time implementation of radio application(s)

NOTE: A function block includes not only the modem functions in Layer1 (L1), L2, and L3 but also all the control functions that should be processed in real-time for implementing given radio application(s). Function block is categorized into *standard function block* and *user defined function block*. In more details:

1)   *Standard function block* can be shared by many radio applications. For example, Forward Error Correction (FEC), Fast Fourier Transform (FFT)/Inverse Fast Fourier Transform (IFFT), (de)interleaver, Turbo coding, Viterbi coding, Multiple Input Multiple Output (MIMO), Beamforming, etc are the typical category of standard function block.

2)   *User defined function block* includes those function blocks that are dependent upon a specific radio application. It is used to support special function(s) required in a specific radio application or to support a special algorithm used for performance improvement. In addition, the user defined function block can be used as baseband controller function block which is to control the function blocks operating in baseband processor in real-time and to control some context information that are to be processed in real-time such as Channel State Information (CSI).

intermediate representation: code obtained as a result of compiling high level code with front-end compiler

> NOTE: An intermediate representation is a non-executable code and independent of baseband processor. It is a structural and behavioural representation of radio application code. Since a user defined function block should be used in every kind of modem chip, user defined function block in radio application package is provided in IR in mid- or long-term scenario. The reason why user defined function block is to be provided in IR instead of executable code is to resolve the portability problem existing in executable code. When user defined function block is provided in IR (platform-independent), the user defined function block is translated into vendor assembly which is executable in a specific baseband processor using back-end compiler that is provided by modem chip manufacturer in the driver of application processor.

mobile device: personal communication device (e.g. mobile phone, PDA, laptop PC etc) capable of communicating by using one or more radio technologies

mobile network operator: potential user for a specific use case

network management system: network management of one or more Reconfigurable Radio Systems (RRS)

operator-governed opportunistic network: operator-governed (through the provision of spectrum, policies, information and knowledge, exploited for its creation), temporary, localised network segment

> NOTE: It involves devices organized in an ad-hoc manner, and is terminated at access points (macro base stations, femto base stations) of the infrastructure. An opportunistic network is set up as a temporary, coordinated extension of the infrastructure with the aim to improve the coverage and capacity of the infrastructure network.

opportunistic network: network which exploits opportunities with respect to the spectrum and the devices in the area.

Program Making and Special Events (PMSE): equipment that is used to support broadcasting and special events in general

> NOTE 1: Special events include culture events, concerts, sport events, conferences, trade fairs etc.

> NOTE 2: These devices operate in different frequency bands. In the present document we focus on devices using the band 470 - 862 MHz, also referred to as professional wireless microphone systems.

public safety organization: organization which is responsible for the prevention and protection from events that could endanger the safety of the general public

> NOTE: Such events could be natural or man-made. Example of Public Safety organizations are police, fire-fighters and others.

radio application: software application executing in software defined radio equipment

> NOTE 1: Radio application is typically designed to use certain radio frequency band(s) and it includes agreed schemes for multiple access, modulation, channel and data coding as well as control protocols for all radio layers needed to maintain user data links between adjacent radio equipments, which run the same radio application.

> NOTE 2: Radio application typically enforces RVM or particular radio platform to generate the transmit RF signals or decode the receive RF signals.

> NOTE 3: Radio Applications might have different forms of representation. They are represented as:

> - source codes including Radio Library calls of Radio Library native implementation and Radio HAL calls;
>
> - IR including Radio Library calls of Radio Library native implementation and Radio HAL calls;
>
> - executable codes for particular radio platform.

radio application package: package containing Radio Controller (RC) code, user defined function block code, and metadata needed for setting up and running radio application(s)

> NOTE: RC code is downloaded into application processor while the user defined function block is downloaded into baseband processor in accordance with the contents of the metadata. Metadata indicate which function blocks are to be combined in what order for implementing given radio application(s) in the baseband processor.

radio control framework: control framework which, as a part of OS, extends OS capabilities in terms of radio resource management

> NOTE: RCF is a control framework which consists of Configuration Manager (CM), Radio Connection Manager (RCM), Flow Controller (FC) and Multiradio Controller (MRC). The Resource Manager (RM) is typically part of OS.

radio controller: software component performing the following functions:

> 1)   transferring context information from corresponding function block(s) in baseband processor to monitor;
>
> 2)   transferring receive user data packet from Medium Access Control (MAC) buffer to networking stack; and
>
> 3)   transferring transmit source data packet from networking stack to MAC buffer.
>
> NOTE: An RC performs also upper layer processing of radio application that operates in non real-time. The monitor, to which the context information is transferred, denotes an application that uses the context information in non real-time such as Mobility Policy Manager (MPM). An RC, which operates in application processor in non real-time, can access function block, which operates in baseband processor in real-time, through driver which is prepared in application processor.

radio equipment: equipment using radio technology

radio lib: library of Standard Function Block (SFB)

> NOTE 1: SFBs implement reference codes of functions which are typical for radio signal processing. They are not atomic and their source codes are typed and visible for Radio Application developers.
>
> NOTE 2: SFB is implemented through Radio HAL when the SFB is to be implemented on dedicated HW accelerators.
>
> NOTE 3: Radio HAL is part of ROS.

radio network: network of radio equipments communicating with each other by using a common radio technology

> NOTE: Typically a radio network has both control plane and user plane with their own protocols. A radio network may also be subject to radio network management by an external network management system; in this case a third plane of protocols, management plane is used for communicating network management information.

radio operating system: any appropriate OS empowered by RCF

> NOTE: ROS provides RCF capabilities as well as traditional management capabilities related to management of radio processor such as resource management, file system support, unified access to hardware resources, etc.

radio processor: part of mobile device hardware working under ROS control and on which Radio Applications are executed

> NOTE: RP is hardware which is capable to generate RF signals or receive RF signals. By nature, it is heterogeneous hardware including different processing elements such as fixed accelerators, e.g. Application-Specific Integrated Circuit (ASIC), or reconfigurable accelerators, e.g. microprocessors, FPGAs, etc.

radio system: system capable to communicate some user information by using electromagnetic waves

NOTE: Radio system is typically designed to use certain radio frequency band(s) and it includes agreed schemes for multiple access, modulation, channel and data coding as well as control protocols for all radio layers needed to maintain user data links between adjacent radio devices.

radio technology: technology for wireless transmission and/or reception of electromagnetic radiation for information transfer

NOTE: Radio technology is typically designed to use certain radio frequency band(s) and it includes agreed schemes for multiple access, modulation, channel and data coding as well as control protocols for all radio layers needed to maintain logical links for user data, which run the same radio application.

radio virtual machine: abstract parallel machine capable to execute computations specific for radio signal processing

NOTE: RVM provides abstract vision of radio platform. To be efficient in different implementations it should represent specific features inherent to radio signal processing. Particularly RVM is capable to generate or receive RF signals.

reconfigurable radio equipment: radio equipment supporting reconfigurable radio technology

Reconfigurable Radio System: generic term for radio systems encompassing Software Defined and/or Cognitive Radio Systems

reconfigurable radio technology: radio technology allowing the modification of modulation, frequency or power by S/W, possibly with extensions for cognitive radio

NOTE: Re-configurability includes the typical understanding of SDR like the ability to change RAT (Re-configurable within 3GPP standards like EDGE/ WCDMA/ LTE), re-configurability between all standards, capacity upgrades to match future needs and mixed or flexible spectrum (single or multi-band) usage.

resource: resource that radio application needs in active state, which includes processor and accelerator loads, memory usage, interconnect bandwidth occupation, Radio Frequency (RF) circuitry, etc.

NOTE: Resources are provided by the reconfigurable Mobile Device (MD), to be used by the radio applications when they are active. Radio applications provide their resource needs (e.g. using operational states) so that the multiradio computer may judge whether these resources are available, in order to ensure non-conflicting operation with other radio applications. Resources may or may not be shared in the MD.

RRS network node: wireless communication terminal or base station which has cognitive radio capabilities or which is based on software defined radio concepts

non-RRS network node: wireless communication terminal or base station, which does not have cognitive radio capabilities or is not based on software defined radio concepts

EXAMPLE: A non-RRS network node is a conventional wireless communications systems based on TETRA standard version 1.

silent period: period of time during which a radio system or a subset of devices in a radio system abstain from any transmission (data, control, reference, etc.) over a particular band or channel.

NOTE: Silencing refers to the act of a device or set of devices to create a silent period.

software defined multiradio: device or technology where multiple radio technologies can coexist and share their wireless transmission and/or reception capabilities, including but not limited to regulated parameters, by operating them under a common software system

NOTE 1: Examples of the regulated parameters are frequency range, modulation type and output power.

NOTE 2: Common software system represents radio operating system functions.

NOTE 3: This definition does not restrict the way software is used to set and/or change the parameters. In one example, this can be done by the algorithm of the already running software. In another example, software downloading may be required.

software defined radio: radio transmitter and/or receiver employing a technology that allows the RF operating parameters including, but not limited to, frequency range, modulation type, or output power to be set or altered by software, excluding changes to operating parameters which occur during the normal pre-installed and predetermined operation of a radio according to a system specification or standard

> NOTE: This is the current definition as given is [i.1].

software defined radio equipment: radio equipment supporting SDR technology

software defined radio system: radio system using SDR technology

spectrum sensing: act of measuring information indicative of spectrum occupancy

> NOTE 1: Information may include frequency ranges, signal power levels, bandwidth, etc.

> NOTE 2: Spectrum sensing may include obtaining additional information on how the sensed spectrum is used.

system use case: use case describing the system functionality level and specifying the function or the service that the system provides for the user

> NOTE: A system use case will describe *what* the actor achieves interacting with the system. For this reason it is recommended that a system use case specification begin with a verb (e.g. *create* voucher, *select* payments, *exclude* payment, *cancel* voucher). Generally, the actor could be a human user or another system interacting with the system being defined.

use case: description of a system from a user's perspective

> NOTE 1: Use cases treat a system as a black box, and the interactions with the system, including system responses, are perceived as from outside the system. Use cases typically avoid technical jargon, preferring instead the language of the end user or domain expert.

> NOTE 2: Use cases should not be confused with the features/requirements of the system under consideration. A use case may be related to one or more features/requirements, a feature/requirement may be related to one or more use cases.

> NOTE 3: A brief use case consists of a few sentences summarizing the use case.

user: user of the Mobile Network

vendor assembly: code obtained as a result of compiling the IR with back-end compiler

> NOTE: Vendor assembly is executable code and, thus, applicable only to a specific baseband processor. The back-end compiler is provided by modem chip provider because vendor assembly has to be prepared for each of baseband processors. In short, back-end compiler translates IR into vendor assembly, which can be ported on a specific baseband processor for which the back-end compiler translates IR.

White Space (WS): part of the spectrum, which is available for a radio communication application (service, system) at a given time in a given geographical area on a non-interfering / non-protected basis with regard to primary services and other services with a higher priority on a national basis

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	3rd Generation Partnership Project
A/D	Analog Digital
AAA	Authentication, Authorization and Accounting
AAF	Adaptive Ad-hoc Freeband
ACLR	Adjacent Channel Leakage Ratio
ADC	Analog-to-Digital Converter
AFA	Adaptive Frequency Agility
AICPC	Acquisition Indicator CPC
ANDSF	Access Network Discovery and Selection Functions
ANR	Automatic Neighbour Relation

AOT	Ahead-Of-Time
AP	Access Point
AP	Application Processor
APCO	Association of Public Safety Communications Officials, International, Inc
API	Application Program Interface
ARNS	Aeronautical Radio Navigation Service
ASCF	Application Specific Command Frames
ASIC	Application Specific Integrated Circuit
ASIE	Application Specific Information Element
ASIP	Application Specific Instruction Processor
ASM	Advanced Spectrum Management
ASN.1	Abstract Syntax Notation One
ATSC	Advanced Television Systems Committee
B3G	Beyond 3rd Generation
BAPCO	British Association of Public Safety Communications Officers
BB	BaseBand
BBA	BaseBand Accelerator
BBDR	Broad Band Disaster Relief
BBI	BaseBand Interface
BBIC	BaseBand Integrated Circuit
BCCH	Broadcast Control Channel
BCH	Broadcast CHannel
BER	Bit Error Rate
BPA	Baseband Parameter Aggregation
BS	Base Station
BS	Broadcasting Service
BSC	Base Station Controller
BSSID	Basic Service Set IDentifier
BTS	Base Transceiver Station
CA	Carrier Aggregation
CALM	Communications, Air-interface, Long and Medium range
CAP	Common Alerting Protocol
CAPEX	CAPital EXpenditure
CC	Component Carrier
CCC	Cognitive Control Channel
CC-CRS	Control Channel(s) for Cognitive Radio Systems
CCM	Configuration Control Module
CCN	Cognitive Control Network
CCP	Central Control Point
CCR	Cognitive Control Radio
CDMA	Code Division Multiple Access
CDR	Computer Defined Radio
CE	Coexistence Enabler
CE	Conformité Européenne
Cell-Id	Cell Identity
CEM	Configurable Execution Module
CEPT	Conférence Européenne des administrations des Postes et Télécommunications
CF	Cognitive Functionality
CFG	ConFiGuration
CII	Context Information Interface
CM	Configuration Manager
CMM	Configuration Management Module
CMMB	China Multimedia Mobile Broadcasting
CMN	Cognitive Mesh Network
CMOS	Complementary Metal-Oxide Semiconductor
CN	Cognitive Network
C-NMS	Cognitive Network Management System
COI	Community Of Interest
COMSEC	COMmunication SECurity
CORBA	Common Object Requesting Broker Architecture
CPC	Cognitive Pilot Channel
CPICH	Common PIlot CHannel

CPRI	Common Public Radio Interface
CQI	Channel Quality Indication
CQPSK	Compatible differential offset Quadrature Phase Shift Keying
CR	Cognitive Radio
CRS	Cognitive Radio System
CS	Circuit Switched
CSI	Channel State Information
CSMA	Carrier Sense Multiple Access
CWN	Composite Wireless Network
D/A	Digital Analog
DAA	Detect And Avoid
DAC	Digital-to-Analog Converter
DB	DataBase
DBCPC	Downlink Broadcast CPC
DDC	Data Download Control
DDF	Device Description Framework
DEC	DECoder
DFS	Dynamic Frequency Selection
DM	Device Management
DMO	Direct Mode of Operation
DNP	Dynamic Network Planning
DoA	Direction of Arrival
DoC	Declaration of Conformity
DODCPC	Downlink On-Demand CPC
DoS	Denial of Service
DQPSK	Differential Phase Shift Keying
DSA	Dynamic Spectrum Allocation
DSM	Dynamic Spectrum Management
DSONPM	Dynamic Self-Organizing Network Planning and Management
DSP	Digital Signal Processor
DTMB	Digital Terrestrial Television Multimedia Broadcasting
DTT	Digital Terrestrial Television
DUC	DLC User Connection
DVB	Digital Video Broadcasting
DVB-H	Digital Video Broadcast - Handheld
DVB-T	Digital Video Broadcasting-Terrestrial
E2R	End-to-End Reconfigurability
EAN	Extended Area Network
ECA policy	Event-Condition-Action policy
ECC	Electronic Communications Committee
EDA	European Defence Agency
EIAN	Extended Incident Area Network
EIR	Extended Inquiry Response
EIRP	Effective Isotropic Radiated Power
EMC	Electro-Magnetic Compatibility
EMR	Electro-Magnetic Radiation
ENB	Equivalent Noise Bandwidth
eNB	evolved Node B
EOL	End Of Life
EPC	Evolved Packet Core
ESRA	European Software Radio Architecture
ESRAB	European Security Research Advisory Board
ESRIF	European Security Research and Innovation Forum
EVM	Error Vector Magnitude
FA	Functional Architecture
FC	Flow Controller
FCC	Federal Communications Commission
FDD	Frequency Division Duplex
FDMA	Frequency Division Multiple Access
FEC	Forward Error Correction
FEM	Front End Module
FFR	Fractional Frequency Reuse

FFT	Fast Fourier Transform
FIPA	Foundation for Intelligent Physical Agents
FM	File Manager
FM	Frequency Management
FPGA	Field Programmable Gate Array
FSM	Flexible Spectrum Management
GAS	Generic Advertisement Service
GGSN	Gateway GPRS Support Node
GMDSS	Global Maritime Distress Safety System
GNSS	Global Navigation Satellite System
GP	Guard Period
GPP	General Purpose Processor
GPRS	General Packet Radio Service
GPS	Global Positioning System
GPU	Graphics Processing Unit
GSM	Global System for Mobile communications
HAL	Hardware Abstraction Layer
HF	High Frequency
HMI	Human Machine Interface
HO	HandOver
HPR	Hardware Processing Resources
HQ	Head Quarters
HSD	High Speed Data
HSDPA	High Speed Downlink Packet Access
HSPA	High Speed Packet Access
HSS	Home Subscriber Server
HSUPA	High Speed Uplink Packet Access
HSxPA	High Speed Packet Access
HTTP	Hyper Text Transfer Protocol
HW	HardWare
IAN	Incident Area Network
ICIC	Inter-Cell Interference Coordination
ICT	Information and Communication Technology
ID	Identification
IDIS	Intra-Device Interface Standard
IDL	Interface Definition Language
IEEE	Institute of Electrical and Electronics Engineers
IEs	Information Elements
IETF	Internet Engineering Task Force
IF	Intermediate Frequencies
IFFT	Inverse Fast Fourier Transform
IIOP	Internet Inter-Object request broker Protocol
IMB	Integrated Mobile Broadcast
IMT	International Mobile Telecommunications
IMT-A	International Mobile Telecommunications-Advanced
IMTP	Internal Message Transport Protocol
IP	Intellectual Property
IP	Internet Protocol
IR	Intermediate Representation
ISA	Instruction Set Architecture
ISDB	Integrated Services Digital Broadcasting
ISDN	Integrated Service Data Network
ISI	Inter System Interface
ISM	Industrial, Scientific and Medical
ITS	Intelligent Transportation System
JAN	Jurisdiction Area Network
JEDEC	Joint Electron Device Engineering Council
JIT	Just-In-Time
JRRM	Joint Radio Resource Management
JTRS	Joint Tactical Radio System
KPI	Key Performance Indicator
L1	Layer 1

L2	Layer 2
LAN	Local Area Network
LBT	Listen Before Talk
LE	License Exempt
Leap	Lightweight extensible agent platform
LINK	access LINK
LS	Liaison Statement
LTE	Long Term Evolution
LTE-A	Long Term Evolution Advanced
MAC	Medium Access Control
MAS	Medium Access Slot
MBMS	Multimedia Broadcast Multicast Service
MBR	Maximum Bit Rate
MBSFN	Multimedia Broadcast multicast service Single Frequency Network
MCCH	MBMS point-to-multipoint Control CHannel
MCE	Multi-cell/multicast Coordination Entity
MD	Mobile Device
MDA	Model Driven Architecture
MDRC	Mobile Device Reconfiguration Classes
MEMS	Micro Electro-Mechanical Systems
MF	Medium Frequency
MIH	Media Independent Handover
MIHF	Media Independent Handover Function
MIH-IS	MIH Information Service
MIMO	Multiple Input Multiple Output
MIPI	Mobile Industry Processor Interface
ML	Markup Language
MME	Mobility Management Entitiy
MNO	Mobile Network Operator
MO	Management Objects
MPM	Mobility Policy Manager
MRC	MultiRadio Controller
MS	Mobile Station
MSP	Multilevel Security Path
MSR	Multi-Standard Radio
MSS	Mobile Satellite Services
MT	Mobile Terminal
MTCH	MBMS point-to-multipoint Traffic CHannel
MTP	Message Transport Protocol
MTSS	Mobile Terminal Semi-Stationary
MUE	Multiradio User Equipment
MU-MIMO	Multi User- Multiple Input Multiple Output
MURI	MUltiRadio Interface
N2N	Network To Network
NAI	Network Access Identifier
NATO	North Atlantic Treaty Organization
NBAP	NodeB Application Part
NET	NETwork
NIAG	NATO Industrial Advisory Group
NMS	Network Management System
NNEC	NATO Network Enabled Capability
NO	Network Operator
NRM	Network Reconfiguration Manager
NSD	Noise Spectral Density
NW	NetWork
O&M	Operation and Maintenance
OAM	Operations, Administration and Maintenance
OBSAI	Open Base Station Architecture Initiative
OE	Operating Environment
OEM	Original Equipment Manufacturer
OFCOM	UK communications regulator
OFDM	Orthogonal Frequency Division Multiplexing

OFDMA	Orthogonal Frequency Division Multiple Access
OMA	Open Mobile Alliance
OMG	Object Management Group
ON	Opportunistic Network
OPEX	OPerational EXpenses
OS	Operating System
OSM	Operator Spectrum Manager
PAMR	Public Access Mobile Radio
PAWS	Protocol to Access White Space Databases
PC	Personal Computer
PCle	Peripheral Component Interconnect express
PDA	Personal Digital Assistant
PDP	Packet Data Protocol
PER	Packet Error Rate
PHY	PHYsical layer
PIM	Platform Independent Model
PLMN	Public Land Mobile Network
PMI	Precoding Matrix Indicator
PMN	Public Mobile Network
PMR	Professional Mobile Radio
PMSE	Program Making and Special Events
PN	Pseudo Noise
PPDR	Public Protection and Disaster Relief
PS	Public Safety
PSAP	Public Safety Answering Points
PSBL	Public Safety Broadband License
PSC	Public Safety Communications
PSCD	Public Safety Communication Device
PSCE	Public Safety Communication Europe
PSM	Platform Specific Model
PSN	Public Safety Network
PSRG	Public Safety Radiocommunications Group
PSSIG	Public Safety Special Interest Group
PSSTC	Public Safety Spectrum Trust Corporation
PTT	Push To Talk
PVSA	Public Vendor Specific Action
QAM	Qadrature Amplitude Modulation
QoS	Quality of Service
QP	Quiet Period
RA	Radio Application
RACPC	Random Access CPC
RAI	Radio Application Interface
RANOp	Radio Access Network Operator
RAP	Radio Application Package
RAT	Radio Access Technology
RBS	Radio Base Station
RC	Radio Controller
RCF	Radio Control Framework
RCM	Radio Connection Manager
RDF	Resource Description Framework
REC	Radio Equipment Control
REQ	REQuirement
RF	Radio Frequency
RFFI	Reconfigurable RF Interface
RFI	Request From Information
RFIC	RF Integrated Circuit
RI	Rank Indicator
RLC	Radio Link Control
RM	Resource Manager
RMC	RAN Measurement Collector
RNC	Radio Network Control
ROS	Radio Operating System

RP   Radio Processor
RPI   Radio Programming Interface
RR   Radio Resource
R-RBS   Reconfigurable Radio Base Station
RRC   Radio Resource Control
RRFI   Reconfigurable Radio Frequency Interface
RRM   Radio Resource Management
RRS   Reconfigurable Radio Systems
RSPG   Radio Spectrum Policy Group
RSRP   Reference Signal Received Power
RSRQ   Reference Signal Received Quality
RSSI   Received Signal Strength Indicator
RTOS   Real Time Operating System
RU   Radio Unit
RVM   Radio Virtual Machine
RX   Receiver
SAP   Service Access Point
SCA   Software Communications Architecture
SCM   Self Cognitive Module
SCV   Spectrum Conformance Validator
SDA   Software Download Authentication
SDAP   Service Discovery Application Profile
SDD   Software Download Distributor
SDF   Synchronized Data Flow
SDO   Standards Development Organization
SDP   Service Discovery Protocol
SDR   Software Defined Radio
SDRF   Software Defined Radio Forum
SEC   SECurity
SFB   Standard Function Block
SIMD   Single Instruction Multiple Data
SINR   Signal to Interference and Noise Ratio
SLA   Service Level Agreement
SME   Station Management Entity
SMS   Short Message Service
SON   Self-Organizing Networks
SoR   Statement of Requirements
SP   Service Provider
S-RMP   Self-ware Reconfiguration Management and control Plane
SRT   Smart Radio Terminal
SSID   Service Set IDentification
SU-MIMO   Single User-Multiple Input Multiple Output
SW   SoftWare
SwCN   Switching and Control Link
SwMI   Switching and Management Infrastructure
T2N   Terminal to Network
T2T   Terminal To Terminal
TC   Technical Committee
TCAM   Telecommunications Conformity Assessment and Market Surveillance Committee
TCP   Transport Control Protocol
TDD   Time Division Duplex
TD-LTE   Time Division Duplex - Long Term Evolution
TDM   Time Division Multiplexing
TDMA   Time Division Multiple Access
TE   TErminal
TEDS   TETRA Enhanced Data Service
TETRA   TErrestrial Trunked Radio
TETRAPOL   Proprietary digital private mobile radio network
TIA   Telecommunications Industry Association
TIP   Tetra Interoperability Profiles
TM   Trade Mark
TMC   Terminal Measurement Collector

ETSI

TRANSEC   Transmission Security
TRC   Terminal Reconfiguration Controller
TRM   Terminal Reconfiguration Manager
TRx   Transceiver
TS   Time Slot
TTT   Time To Trigger
TV   Television
TVBD   Television Band Device
TVWS   TV White Space
TVWSD   TV White Space Device
TX   Transmitter
UAV   Unmanned Arial Vehicle
UDFB   User Defined Function Block
UDP   User Datagram Protocol
UE   User Equipment
UHF   Ultra High Frequency
UMTS   Universal Mobile Telecommunications System
URA   Unified Radio Application
URAI   Unified Radio Application Interface
USB   Universal Serial Bus
USIM   Universal Subscriber Identity Module
USR   User Requirement Specification
UUID   Universal Unique Identifier
UWB   Ultra Wide Band
VHF   Very High Frequency
VHO   Vertical Hand-Over
VSA   Vendor Specific Action
VSIE   Vendor Specific information element
WCDMA   Wideband Code Division Multiple Access
WF   WaveForm
WFA   Wi-Fi Alliance
WiFi   Wireless Fidelity
Wi-Fi   Wireless Local Area Network product certified by Wi-Fi Alliance
WiMAX   Worldwide Interoperability for Microwave Access
WinnF   Wireless innovation Forum
WLAN   Wireless Local Area Network
WRC   World Radio Conference
WS   White Space
WSD   White Space Device
WWRF   Wireless World Research Forum

History

Document history		
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