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Broadband Radio Access Networks (BRAN);
Study of central coordination of WAS/RLANs operating in the 5 GHz frequency band

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Contents

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Broadband Radio Access Networks (BRAN).

Modal verbs terminology

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Introduction

Developing technologies for 5G Broadband Systems is one of the objectives of the European Commission. The EC H2020 project COHERENT [i.14], "Coordinated Control and Spectrum Management for 5G Heterogeneous Radio Access Networks" has addressed topics related to the application of the basic principles of wired Software - Defined Networks (SDN) to wireless networks.

The present document includes the main outcome of the project and the results of additional studies.

The present document does not address any regulatory issues and does not address mandatory requirements such as those related to article 3.2 of Directive 2014/53/EU [i.13].

Some results incorporated in the present document received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 671639.

1 Scope

The present document contains studies of the architectures and the protocols supporting the central coordination of WAS including RLANs (WAS/RLAN) operating in the 5 GHz bandIt also includes information provided by a radio node/network of radio nodes and the procedures for the coordination of the operation of these nodes.

2 References

2.1 Normative references

Normative references are not applicable in the present document.

2.2 Informative 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.

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

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] Alexandros Kostopoulos, George Agapiou, Deng Junquan, Dorin Panaitopol, Fang-Chun Kuo (Editor-in-Chief), Kostas Katsalis, Navid Nikaein, Mariana Goldhamer, Tao Chen, Rebecca Steinert, Roberto Riggio: "System Architecture and Abstractions for Mobile Networks", EU H2020 5G-PPP COHERENT Project Deliverable D2.2, July 2016.

NOTE: Available online at http://www.ict-coherent.eu/.

[i.2] Nguyen et al.: "SDN and virtualisation-based LTE mobile network architectures: A comprehensive survey", Wireless Personal Communications, vol. 86, no. 3, pp. 1401-1438, 2016.

[i.3] F. Ahmed et al.: "Distributed Graph Coloring for Self-Organization in LTE Networks", Journal of Electrical and Computer Engineering, 2010.

[i.4] P. Cardieri: "Modeling interference in wireless ad hoc networks", IEEE Communication Surveys & Tutorials, vol. 12, no. 4, p. 551-572, 2010.

[i.5] Ericsson Technical White paper: "5G systems - enabling industry and society transformation", 2015.

[i.6] 5G White Paper, white paper, NGMN Alliance, 2015.

[i.7] Antti Anttonen (Editor-in-Chief), Tao Chen, Tapio Suihko, Aarne Mämmelä, Sundar Daniel Peethala, Nidal Zarifeh, Furqan Ahmed, Junquan Deng, Ragnar Frej-Hollanti, Sergio Lembo, Olav Tirkkonen, Antonio Cipriano, Dorin Panaitopol, Per Kreguer, Akhila Rao, Rebecca Steinert, Chia-Yu Chang, Roberto Riggio, Shah Nawaz Khan, Mariana Goldhamer, Pawel Kryszkiewicz, Fang-Chun Kuo, George Agapiou, Dimitri Marandin, Yi Yu: "First report on physical and MAC layer modelling and abstraction", EU H2020 5G-PPP COHERENT Project Deliverable D3.1, June 2016.

NOTE: Available online at http://www.ict-coherent.eu/.

[i.8] IEEE 802.11™-2012: "IEEE standard for Information Technology, Local and metropolitan area networks, Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".