



Cognitive Radio Experimentation World



Project Deliverable D8.8.1

Promotion and dissemination of UDUR Experiments

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Abstract:

This report describes the dissemination of the test results of the two experiments which were performed in order to determine the sensitivity of various Cognitive Radio sensing engines to low level received signals with and without modulation and to perform radio channel measurements to study the effects of the environment on the received signal. In this report, a description of the promotion and dissemination activity is presented.

Keywords: Cognitive Radio, Sensing engine, COTS

Executive Summary

This report describes the promotion activity to disseminate the results of the tests of the two experiments that were carried out by Durham University, U.K as part of the CREW OC1. The purpose of the first experiment was to determine the sensitivity of various cognitive sensing engines to low level received signals with and without modulation using different types of sensing engines ranging from high end Commercial of the Shelf (COTS) to low cost COTS and custom designed sensing engines. The experiment was conducted in the anechoic chamber at Durham University.

The second experiment involved carrying out radio channel measurements to evaluate the effects of shadowing and multipath fading on cognitive radio networks. The experiment was conducted in three sites: the air cabin environment in EADS, the office environment at TUB and the closed environment in iMinds.

The report lists the publications thus far and planned activity to disseminate the results of the experiments both at the FIRE meeting in May, 2013 in Dublin and in other publications.

List of Acronyms and Abbreviations

CR:	Cognitive Radio
CREW:	Cognitive Radio Experimental World
COTS:	Commercial Off The Shelf
WILAN:	Wireless Local Area Network
TUB:	Berlin Technical University
EADS:	European Aeronautic Defence and Space Company
WiFi:	Wireless Fidelity
TCD:	Trinity College Dublin
ISM:	Industrial, Scientific and Medical

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1 List of publications

1. Paper presented at ICTRS-2012, 29-31 August 2012, Sofia. S. M. Feeney and Sana Salous **Frequency Modulated Continuous Technology For Radio Channel Measurements in The 60 GHz Band**. The paper presents the architecture and the boards being assembled for the CREW radio channel experiment and preliminary test results demonstrating the functionality of the sounder in the first ISM band
2. Paper presented at the COST IC1004 Malaga, 6-8 February 2013: IC1004 TD (13) 06037, Malaga, Spain, James R. Kelly, Mikolaj Chwalisz, Sana Salous, **Cognitive radio: sensing engine sensitivity**. The paper presents preliminary results of the sensitivity test of the sensing engines. The paper was well received and led to an invitation to present a document at the COST TERRA meeting in April.
3. Paper presented at IET annual Seminar on Passive RF and Microwave Components, seminar, 18th March, Birmingham, UK, S.M. Feeney and S. Salous, **High Order Micro-strip Filters to Support Signal Generation and Translation**.
4. Invited paper to be presented at EUCAP 2013, April 2013, S. Salous, R. Rudd, D.F.Bacon, K.H.Craig, M.J. Willis, **Indoor and outdoor coverage measurements up to 6 GHz**. The paper presents results of propagation measurements using active measurements and passive monitoring of UMTS signals for cognitive radio applications.
5. Invited presentation at COST IC0905 TERRA to present results of the sensing engines and typical channel measurements obtained in the two experiments.

2 Planned activity for further dissemination

1. Two posters and two leaflets will be prepared for presentation at the Hands on FIRE! Demonstrations in Dublin, 8-10 May 2013.
2. The data will be further processed to extract relevant channel parameters and technical documents will be submitted to the Study Group 3 of the ITU where appropriate.
3. It is expected that three journal papers will be prepared and submitted as appropriate to the IET Proceedings, IEEE transactions and Radio Science. One on the results of experiment 1 outlining the technique and the results for the evaluation of the sensing engines, another paper describing the results of the second experiment with the aim of extracting an appropriate channel model for testbed environments, and a third paper describing the compact dual band channel sounder.