

Title: VHF band utilization measurement for cognitive radio application in Malaysia

Author/Authors: Hashim Eltahir Ahmed Elshafie, Norsheila Faisal, Sharifah Kamilah Syed Yusof, Hafizal Mohamad, Nordin Ramli, Shanjeevan Jayavalan, Walid A. Hassan, Suleiman Zubair

Abstract: This paper presents an experimental quantitative analysis of the dynamic behavior of very high frequency (VHF) III at 174–230 MHz band for opportunistic access in Malaysia. In order to investigate the variations of the VHF channels with respect to all operating stations in the country, measurements were conducted at two locations, namely, Malaysian Institute of Microelectronic Systems and University of Tenaga Nasional, Malaysia. The experimental result shows that the overall spectrum utilization for the two locations is just about 32 and 7 % respectively. These experimental results reflect a low utilization of the VHF spectrum band which consequentially indicates the ample availability of TV white space which can be utilized via opportunistic access for services like the Internet and other services. Primarily, this work is an attempt to obtain a set of generic reference values for evaluation of spectrum usage, which can be used for other potential bands for the future deployment of secondary user applications in Malaysia. It also provides useful information to the regulator in considering the deployment of opportunistic spectrum access, which can significantly impact both economic and social communication in the country.