

**ITU-R SG 1/WP 1B WORKSHOP:
SPECTRUM MANAGEMENT ISSUES ON
THE USE OF WHITE SPACES BY
COGNITIVE RADIO SYSTEMS
(Geneva, 20 January 2014)**

**Use of TV White Spaces
by Cognitive Radio
Systems
The UAE Views**

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Use of TV White Spaces by Cognitive Radio Systems

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Definition of Cognitive Radio Systems:

“Cognitive radio system is a 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.”

Source: Report ITU-R SM.2152.



Definition of White Spaces:

According to the ITU report “Digital Dividend: Insights for spectrum decisions”, TV white spaces (TVWS) are “portions of spectrum left unused by broadcasting, also referred to as interleaved spectrum”.

Widely, TVWS are also referred to as those currently unoccupied portions of spectrum in the terrestrial television frequency bands in the VHF and UHF TV spectrum (be it analogue or digital, generally in the UHF band).



Background (1/2):

White Space generally refers to the spectrum allocated to broadcasting services but not in use locally because of technical limitations in broadcasting technologies. Mainly the TV Broadcasting band in UHF range is considered as white space.

The terrestrial digital TV because of its increased spectrum efficiency left more fragmented spectrum available as white space after switchover from analog to digital TV.



Background (2/2):

This spectrum over and above the frequencies required to support existing broadcasting services in a fully digital environment which later termed as digital dividend posed great opportunity to bridge the digital divide and to feed the bandwidth hungry mobile data applications.

The decision taken at WRC-07 and WRC-12 pave the way for tidying up the digital dividend spectrum and eventually resulted in allocation of 800 MHz and later 700 MHz spectrum allocated to Mobile Services on co-primary basis along with the broadcasting services.



UAE Case (1/3):

In line with the decisions taken at WRC-12, the UAE has decided to use the bands 700 and 800 MHz for Mobile Services.

This has squeezed the terrestrial TV broadcasting in the lower band from 470-698 MHz.

The UAE is planning to compensate the Geneva-06 frequency assignments lost in 700 & 800 MHz band through additional coordination and by deploying of second generation DVB-T2. The larger SFN coverage possibilities possible with DVB-T2, the availability of White Space reduced significantly.



UAE Case (2/3):

Furthermore, the frequency requirements for low power devices mainly used in Services Ancillary to Broadcasting & Production are also accommodated in 470-698 MHz band.

The UAE located in Geneva-06 Propagation Zone C (Warm Sea) having worst propagation scenarios in the world because of ducting effects. Cross border interference is a day to day affair in summer times.

All the above factors have optimized the utilization of 470-698 MHz band and we believe that the concept of White Space is no more valid of this frequency band.



UAE Case (3/3):

However, this is the UAE scenario and ground realities may be altogether different in other parts of the world.

In principle we fully support the concept and operation of Cognitive Radios, however the concept to use TV White Spaces by the Cognitive Radios seems not workable.

We recommend further studies especially keeping in view the realities mentioned above for the UAE case.



Thank you for your attention

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