WORKSHOP ON COGNITIVE RADIO AND SOFTWARE DEFINED RADIO: POLICY AND REGULATIONS

UHF TV white spaces: UK regulatory update

Siew Yoon Tan
Spectrum Policy Group

2 May 2012

© Ofcom

Outline

- Ofcom's position on white space devices
- Update on UK regulation for white space devices
- European regulation for white space devices
- Conclusions

The path towards access to TV white spaces

Ofcom's consultations

White space access should be allowed in principle and be licence exempt, provided no interference is caused to licensed services.

Initial views on white space database ownership, information exchange between databases and WSDs.

Digital Dividend Review (2007) → **Cognitive Access (2009)** → **Geolocation for Cognitive Access (2010)** → **Implementing Geolocation (2011)** ●●●

Geolocation was the most promising way for a WSD to gain access to spectrum in the short-medium term. Sensing is also an option in the longer-term.

Initial views on approach to making WSDs licence exempt, high-level requirements on databases and database providers.

Enabling access to TV white spaces

Rural broadband

- Context
  - Strong industry interest to deploy new services in the TV white spaces.
  - Huge estimated demand for spectrum for wireless data applications.

- Duty to secure optimum use of the spectrum
  - TV white spaces are (by definition) unused.
  - Database approach allows us to define white space availability so as to minimise the risk of harmful interference being caused to existing licensees.
  - Technologies have advanced to the extent that dynamic and opportunistic spectrum sharing is becoming technically viable.
  - This can result in increased efficiencies in spectrum use.

Machine to machine

- Desire to promote innovation
  - Most innovation services arise in licence exempt spectrum
  - Access to TV white spaces is a stepping stone to facilitate future dynamic access to white spaces in other bands.

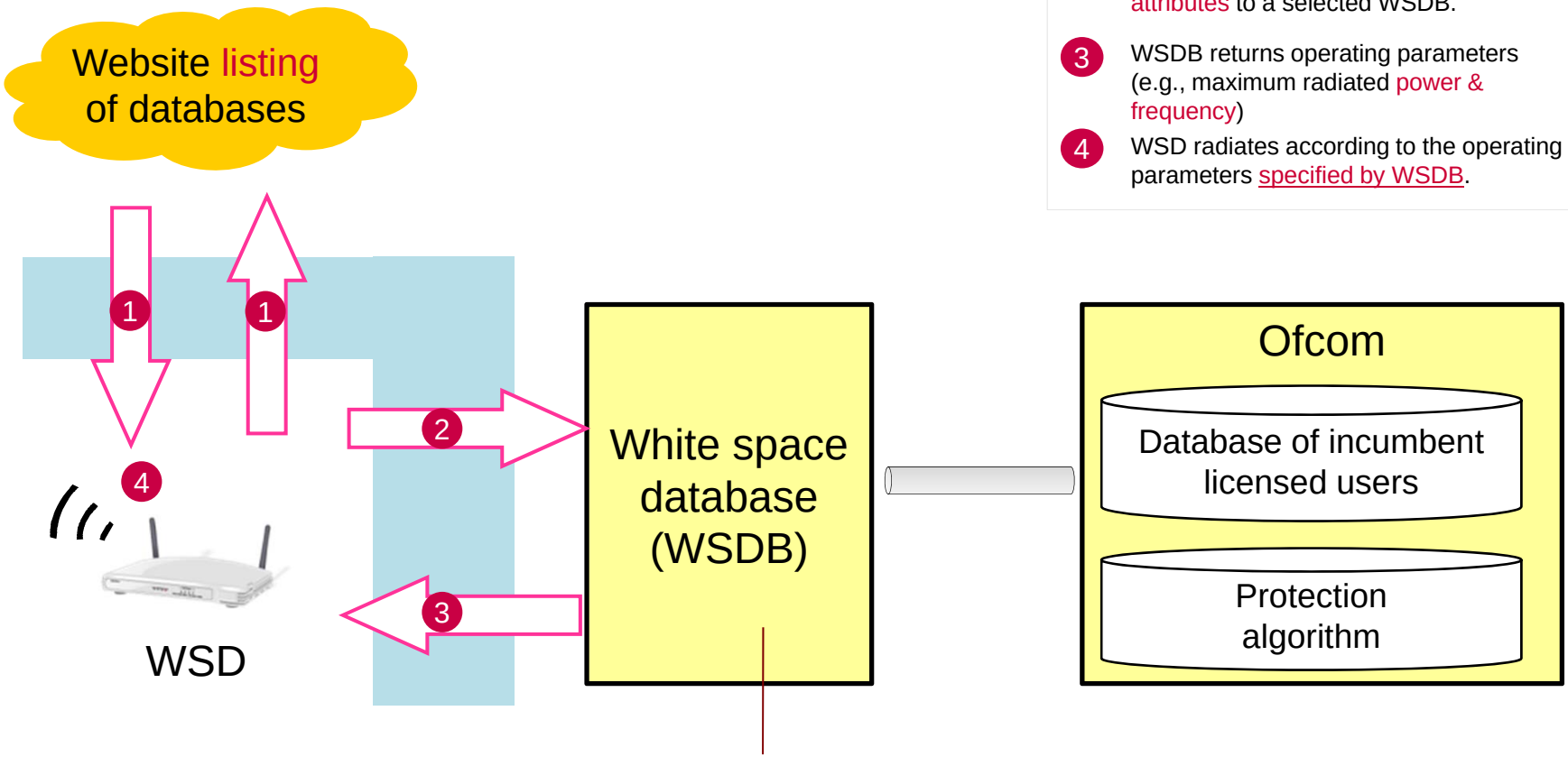
Short-range wireless

Outline

- Ofcom's position on white space devices
- Update on UK regulation for white space devices
- European regulation for white space devices
- Conclusions

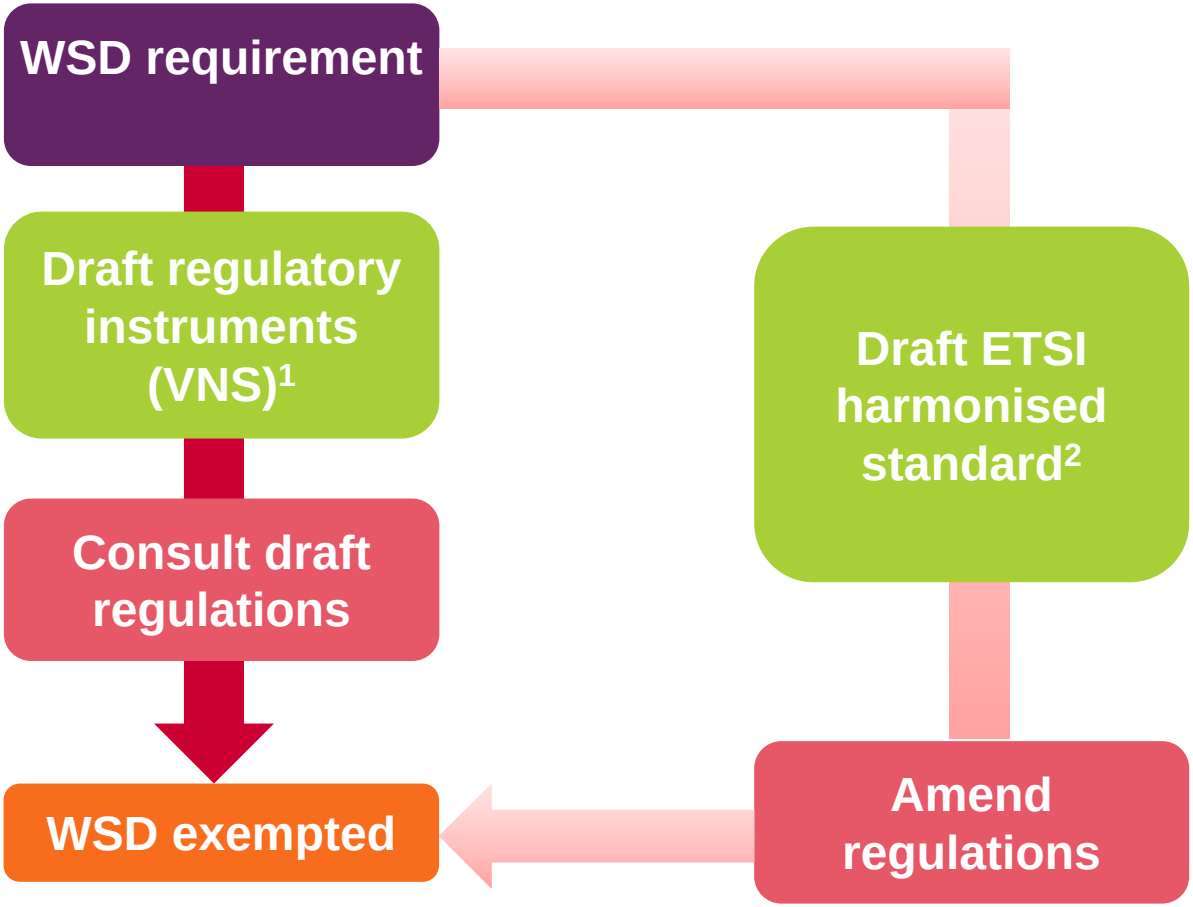
Database-assisted access to white spaces

1. WSD consults a list of WSDBs on a website hosted by Ofcom or third party and selects its preferred WSDB.
2. WSD sends its location and device attributes to a selected WSDB.
3. WSDB returns operating parameters (e.g., maximum radiated power & frequency)
4. WSD radiates according to the operating parameters specified by WSDB.



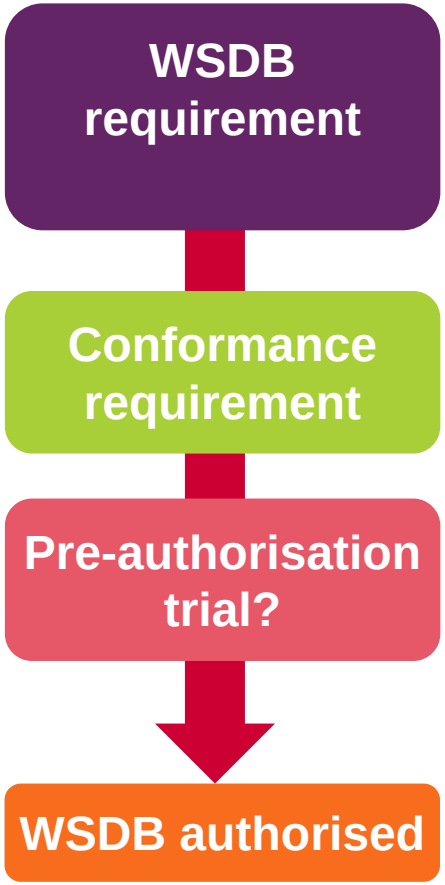
Identifies available TV channels to WSD

The UK approach for regulation of WSDs



1 VNS is intended as an interim measure prior to completion of ETSI harmonised standard
2 Compliance with the essential requirements of the R&TTE Directive is typically achieved via conformance with European harmonised standards or norms (ENs).

The UK approach for authorisation of WSDBs

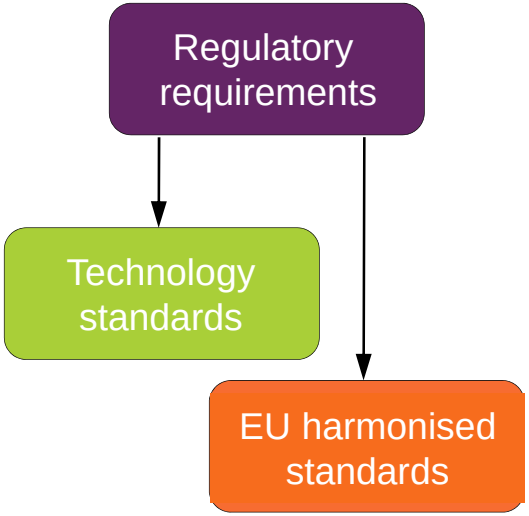


- Essential that the authorisation model for WSDBs provide us with sufficient control to take action if necessary.

Outline

- Ofcom's position on white space devices
- Update on UK regulation for white space devices
- European regulation for white space devices
- Conclusions

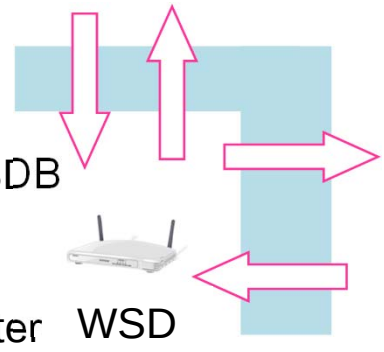
WSD harmonised standard (HEN)



- Standardisation is important for three reasons:
  - To achieve economies of scale.
  - To allow for the roaming of WSDs across borders.
  - To enable a common European market

- HENs would specify radio technical specifications and related conformance tests.

- In addition, WSDs HEN would also be required to specify



a) minimum set of parameters to be exchanged between WSD and WSDB (as recommended by CEPT),

b) how a WSD must generate (and respond to) the exchanged parameter

c) conformance tests in relation to (a) and (b).

What does not need to be harmonised

WSDB technical algorithm

- Traditionally, technical conditions of radio equipment are defined and harmonised based on sharing studies and an agreed set of protection requirements. This is a time-consuming process.
- WSDB technical algorithm affords flexibility to national administrations to define country-specific protection requirements to reflect their national circumstances.

WSDB authorisation

- This can be country-specific and consists of the technical and operational requirements that a WSDB provider must adhere to in order to be approved by national administrations to provide services to WSDs.

Outline

- Ofcom's position on white space devices
- Update on UK regulation for white space devices
- European regulation for white space devices
- Conclusions

Conclusions

- We have outlined our current views and approach towards enabling white space devices (WSDs) to access to TV white spaces.
- We propose to use UK-specific voluntary national specifications (VNSs) as a short-term instrument for the regulation of WSDs.
- We have indicated the need for standardisation of the interface between a WSD and a WSDB. We have emphasised that the internal operation and authorisation of WSDBs need not be standardised.
- We intend to actively engage in the CEPT/ETSI process by contributing our thinking, as they develop, to progress the work to develop guidance to national administrations on how access to TV white spaces could be facilitated through WSDBs.

© Ofcom

European effort

- We believe that access to TV white spaces is a critical test case
  - in enabling dynamic and opportunistic spectrum sharing, and
  - for future access to white spaces in other bands.
- It is imperative that we in Europe focus our efforts in solving the specific and well-defined problems presented by access to TV white spaces.
- Access to white space through geo-location is a first step towards cognitive access. European roadmap for CR should reflect this.
- Progress in this area will allow increased technical and economic efficiencies in the use of the radio spectrum.

Thank you!

siewyoon.tan@ofcom.org.uk