PMSE
Nederlandse Belangenvereniging
Draadloze Audio Verbindingen
Programme Making & Special Events

Response to the RSPG Call for public input on the draft RSPG report on Cognitive Technologies

Respondent:
PMSE.NL: The Dutch association of Wireless Audio Technologies related to the PMSE (Program Making and Special Events).
We represent more than 35 organizations in the Dutch PMSE sector, covering public and private broadcast, association of public and private broadcast facility companies, rental companies, association for theatre technicians, association of theatre managers, association of event producers, etc.

We welcomed RSPG report on cognitive technologies and we encourage the RSPG awareness of their responsibility of proper use of the spectrum and to protect incumbent users to what we consider the potential threads of spectrum pollution.

Already in the response on the DD consultation we emphasized our views on the "classical cognitive radio devices:
"If we look to the technical parameters of what CR/SDR may stand for product wise, we foresee the IT industry will come with a lot of ISM products that currently produce a lot of problems in the ISM bands already. It looks like the very risk to ether pollution is not considered and addressed yet by the IT industry itself (they will interfere which each other!) nor by regulators. Our industry is a very experienced user of "white spaces" and we know the more devices are being deployed the more spectrum management is needed!"

We are content to conclude the RSPG has more dedicated views on the use of cognitive technologies. However we would like to take the opportunity to respond to some of the report's conclusions.
In general we do encourage innovation in more spectrum efficiency, but we would like to emphasize due to the technical parameters of wireless microphones (100% duty cycle; high audio quality, cannot live with any interference signals higher as -95 dBm; main user of UHF TV band white spaces) we need sufficient protection.
As RSPG already accepted the importance of PMSE it would be good to give PMSE a higher status as other secondary uses in the interest of European social-cultural values.
We agree with the conclusion too many aspects, especially the business models as it comes to "costs of possible interference to incumbent users", are unclear.
When it comes to appoint a frequency band we would like to give a small example of the impact of the current digital dividend and the potential risks of introducing "new technologies in the UHF TV band. The Olympic games will need 350 channels of wireless microphones which will need up to 350 MHz of bandwidth according the ECC TG4 rule of thumb (due to inter-modulation products on a multichannel wireless microphone system it will need about 1 MHz per channel). 470-790= 320 MHz,

so with the current DD there is not sufficient spectrum left to produce the Olympics anymore. These 320 MHz is also diminished by 6 to 11 DTT multiplexes which results in 232-272 MHz. It is expected when mobile cognitive radio devices will be deployed in the UHF TV band, the Olympics will be severely interfered by consumers using these devices within the audiences. If we cannot produce broadcast content for the Olympics, how should we host them? (off course the Olympics are a special event)
At average every theatre will need 50 till 150 MHz off spectrum and special events usually use the major part of the UHF TV band white spaces.
Sensing will definitely not be sufficient to protect wireless microphones as proved by severe testing in the USA. We think the UHF TV band is not suitable for cognitive radio devices with only sensing capabilities. We do agree with the conclusion passive usage is impossible to detect and it will be the passive wireless microphone receiver which will be interfered. We are convinced the correct parameters of the wireless microphone receivers can easily be obtained through the Association of Service Providers (APWPT) of which the major microphone manufacturers are member.
Wireless microphones can easily be considered as a “pre-cognitive radio system”. Especially the high priced wireless microphone systems have scan functions over the part of the spectrum which they can cover and some of them have frequency management software to configure a multi channel system. Users frequently contact data bases of regulators and band managers to determine which TV band white spaces can be used. PMSE industry has more than 60 years experience in the extremely efficient deployment of radio microphones, reporter sets, audio links and other wireless production technologies in TV white spaces. We think this experience should not be neglected.
Electronic News Gathering teams often use wireless production tools like wireless microphones. Within the nature of news gathering data of use are provided to a band manger in a very late stadium and sometimes there is just lack of time to register. It will be difficult to have accurate and reliable data in the database and we consider the standardization of such a database extremely complex and should not be deployed by a commercial entity but by a regulator/band manager.
We understand a Cognitive Pilot Channel within a cognitive radio device will be needed to establish geo-location of the device and the possibility to shut it down when necessary.
We do not agree with the assumption the UHF TV band provide enough parameters to introduce cognitive radio technologies. We consider the ISM bands are a good starting point to acquire experience with cognitive radio technologies. The UHF TV band white spaces are too much and often used by PMSE. Protection parameters for wireless microphones should be examined thoroughly before even considering the UHF TV bands.

We believe a cognitive radio device which will be granted access to UHF TV white space, should be able to sense in the noise floor, should have access to a reliable and accurate database and should identify its position through a “out of UHF TV band” CPC, with the capability to shut it down automatically when needed. We agree with the conclusion we need to be confident there will be no harmful interference in order to do our daily work.

Best regards

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