

Workshop on Radio Frequencies | Friday, 12 June 2015, 14:00-17:30
@ 49th Pearle* Conference, Hamburg



In the frame of the PEARLE*-EFA partnership and in the context of EFA's RISE project supported by the Creative Europe Programme 2014-2016 - Capacity Building in the Context of Internationalisation, Cross-Border Cooperation and Mobility - **two workshops** were organised for EFA and Pearle* members at the occasion of the **EFA General Assembly 2015 in Ostrava** and the **49th Pearle* Conference in Hamburg**.

This time we chose to focus on three subjects that keep coming up in the work (and preoccupations) of all those touring – or programming internationally: Social Security, VAT and Radio Frequencies.

Wireless microphones and radio spectrum
(Hamburg)

PMSE, programme making special events, is the group of users usually referred to in context of radio spectrum users. Musicians, singers, performers, use wireless microphones to move freely over a stage whilst they sing, dance, perform and act. One will also see it applied in broadcasting (news gathering, tv shows, etc.) and in the recording industry. Also technical crew uses wireless microphone technology for in-ear monitoring to communicate and give each messages.

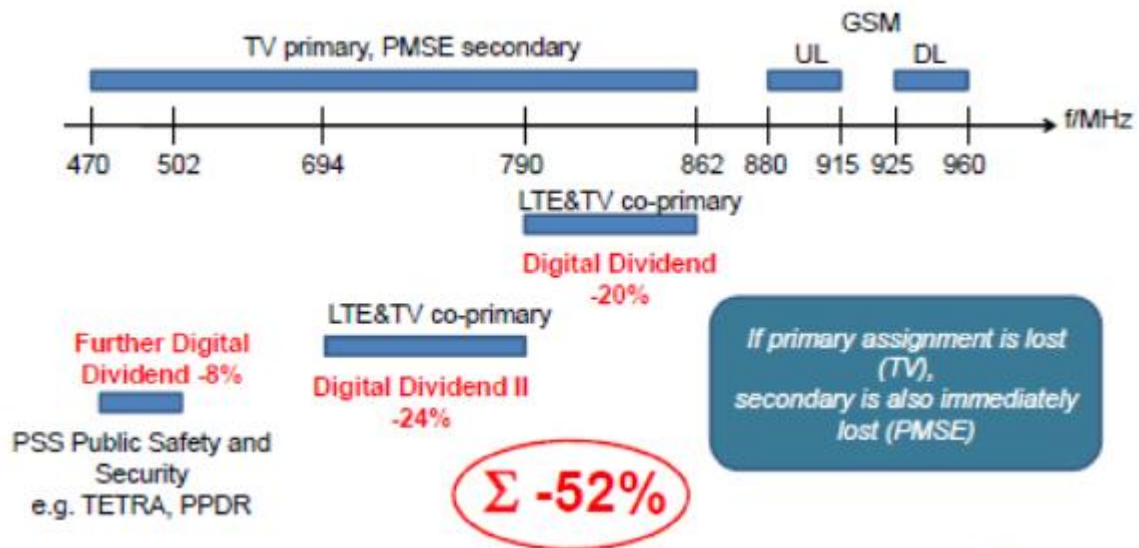


The usage of this technology relies on access to radio spectrum, which is a scarce public natural resource managed and regulated by the public authorities (for example in Belgium by BIPT, in UK by Ofcom). The exponential growth of operators, such as TV, data transmission, phone, internet have led to a situation that there are more and more players asking to use cellular (ultra-high frequency ranges), in particular with 4G having become the norm.

So what's going on?

The fact that more and more spectrum goes to 4G, which is commonly referred to as the digital dividend means that less spectrum remains available for wireless microphones usage. The manufacturers of this equipment have to adapt their equipment or totally renew it to the frequency ranges that are accessible.

Already in several countries, more spectrum, through the so-called second digital dividend, is attributed to mobile phone industry. Again less options for performances to be able to access the spectrum.



It is imagined that in future 400 up to 6000 MHz all could be for cellular phone networks.

The specific relationship with broadcasting

As cellular phone networks rely on the UHF, the ultra-high frequencies, so does broadcasting. They are referred to as primary users, which grants them the right of a primary assignment to radio spectrum which they need to secure their operations.

PMSE, and thus wireless microphones, is attached to broadcasting in such way that it is granted a so-called secondary status, there where broadcasting has a primary status. In other words, if broadcasters has less access to spectrum, so does PMSE.

This is to be explained from the fact that broadcasting used to manage the whole value chain: from the production, over the content management, to the distribution. As broadcasting holds a primary status, it could therefore also guarantee its production of news, TV shows and others through a secondary use for PMSE.

What should live performance organisations do?

1. For any production which requires use of wireless microphones, get the most recently made equipment, adapted to the most recent technological developments. Rather hire than buy equipment, even if this may be more expensive.
2. Make sure that you obtain the license from the regulator in your respective country, detailing what you need and when. It's at your own risk not to do so, as you may have interference during your performance (sometimes already simply by a smartphone of a member in the audience). For performances which only require one or two microphones in a small scale setting one may still rely on the 'old' equipment and the access to the duplex centre gap (823-832 MHz and 1785-1805 MHz).
3. Following a European regulation, all member states are obliged to make available at least another 30 MHz for PMSE use. This should be the case in each country since March 2015.

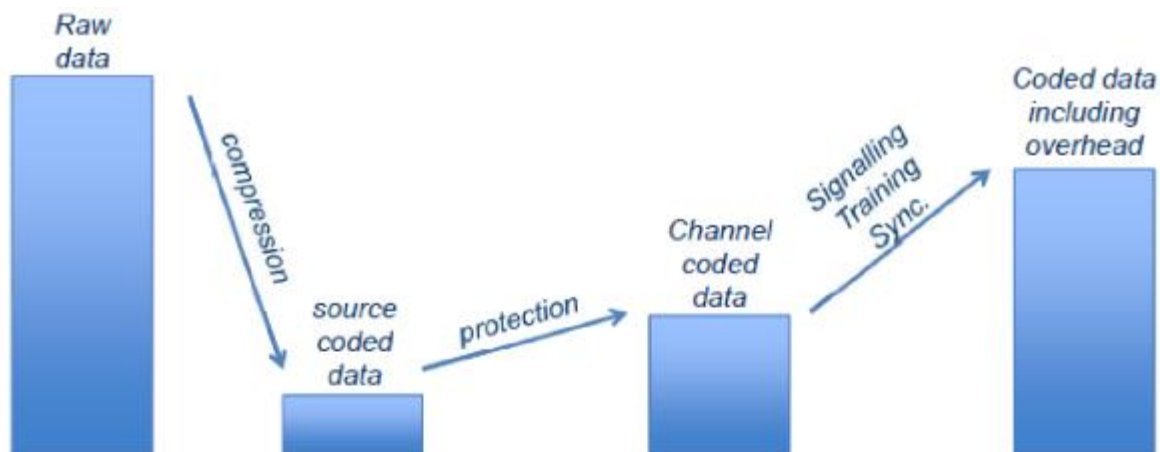
What about digital wireless systems?

There are is a common misconception and misunderstanding that digital wireless microphone technology is better or would be better. In particularly for performances which demand the highest artistic quality of audio, where the richness and detail of the sound is important, there is an important loss of quality.

Digitisation of PMSE will not give additional capacity. Digital just allows for scalable quality.

Thus what happens with digital transmission?

First we squeeze information and compress it to the maximum. Then we blow up the information by putting on the top a channel coding to protect the digital data and in addition a further price is paid to the quality by overhead.

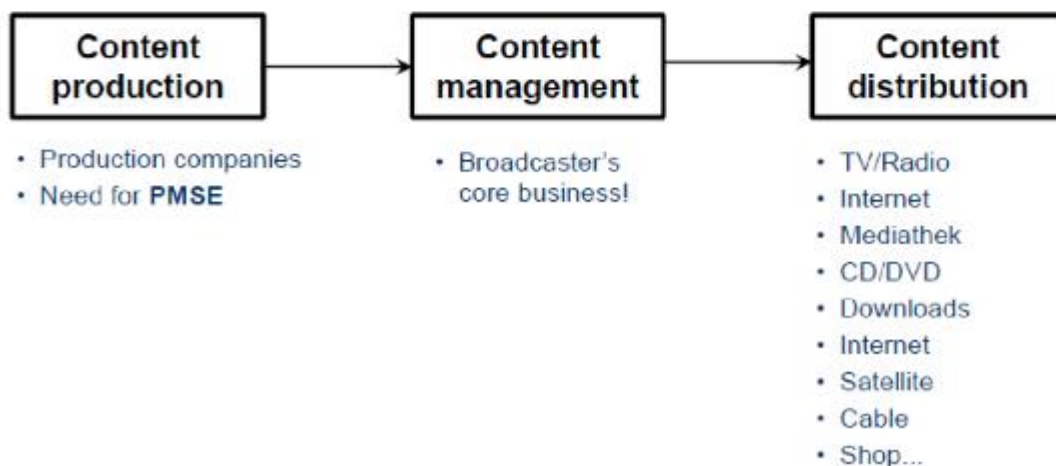


In artistic context, can it be desirable and acceptable for just someone to decide what relevant is and not relevant. What quality level is appropriate. What 'details' can be stripped off. All these can be much more managed in the analogue transmission than that it is possible in the context of digital transmission.

Anyone buying or intending to use digital wireless transmission system should be aware of the consequences of such choice.

What will the future bring?

According to Mr Fischer, as broadcasting is more and more focusing on content management and therefore no longer present through the entire value chain, whereby broadcasting and production or PMSE is under one institution. For that reason, the traditional model of primary status for broadcasting and secondary status for PMSE no longer holds. PMSE should thus be granted primary status. This would give long term guarantees (planning security).



Mr Fischer also underlines that for PMSE the usage should remain under the 2 GHz as otherwise the body absorption gets too high at higher frequencies.

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