



Welcome to the World of Standards



EXPERIENCE OF 800 MHZ: FUTURE PERSPECTIVES FOR 700 MHZ

EC Workshop on Co-existence challenges in UHF

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- 1) Background: why are de doing this?
- 2) Experience 1: co-operation & comprehension
 - between industrial communities
 - Between standards bodies
 - In search of “Idle Mode”
- 3) Experience 2: Spectrum planning & Equipment Regulation
 - Primary vs secondary services
 - Effect of spectrum refarming on EMC environment
- 4) Future 1: Technical improvements
- 5) Future 2: Building on improvements in SDO co-operation
 - Importance of active participation by Member States
- 6) Future 3: Impact of Radio Equipment Directive
- 7) Conclusions

- EC Decision 2010/267/EU on technical conditions for WBB in 800 MHz
 - Whereas (11) refers to the need to address interference rejection of TV equipment “as a matter of urgency”
 - Art 2(2) requires Member States to ensure that systems in adjacent bands are protected
 - CEPT Report 30 (2009-10) provides Block Edge Masks aimed at managing the risks to neighbouring networks
- EP/Council Decision 243/2012/EU (RSPP)
 - MS to authorize use of 800 MHz by WBB by 1 Jan 2013
- Feb 2013: letter to CENELEC & ETSI calling for additional standardization to resolve compatibility issues

- Need to improve interference rejection of TV receivers, and associated equipment (amplifiers, filters etc)
- Short-Range Devices: need to improve rejection of out-of-band interference
 - Not included in studies for CEPT Report 30
 - ECC Report 207 published in January 2014.
- LTE:
 - need to reduce out-of-band emissions
 - Need to define “idle mode”

- TV, SRD & LTE industries had all designed equipment & services based on existing EMC & spectrum-sharing assumptions
- VERY expensive to “retro-fit” compatibility to existing products and services
- Each needs to minimise its own costs to stay competitive.
- Little room for win-win solutions
- Initial “defensive” atmosphere

- 🌐 CEN-CENELEC-ETSI joint work (“mode 5”)
 - Always considered infeasible
- 🌐 CENELEC (& CEN) rely on sales of documents for income
- 🌐 ETSI relies on membership fees
- 🌐 “mode 5” gives neither!
- 🌐 Financially, “lose-lose” ...
- 🌐 Mission impossible?

In search of “Idle mode”



- 3GPP “Idle mode” is a defined term, but is not the disturbing signal indicated in TV field investigations
- Off-air recorded signal (used in D-book) seems to detect TV receivers susceptible to 800 MHz BS
- Recommended to research further:
 - Improve understanding of time-domain disturbance
 - Develop a test signal that can discriminate susceptible TV receivers effectively (& efficiently...)
 - Supplement with signal to test susceptibility to 700 MHz UE
- Demonstration of need for industries to speak a common language

- ITU concept of “Primary” and “Secondary” service of limited relevance in EU equipment regulation
 - ITU regulates cross-border frequency planning
- Spectrum refarming affects EMC environment
 - Non-radio aspects not addressed by spectrum managers
 - EMC standardization expected to follow
 - May take many years for old equipment to disappear from use

- Significant technical progress made:
 - GSM-R receivers
 - TV receivers
 - “Category 3” SRD receivers suppressed
- Still work to do:
 - Improvement of “Category 2” SRD receivers started
 - Reduction of LTE OOB & mitigation techniques under investigation
 - Improved characteristion needed of time-domain disturbance effects (“not so idle mode”)

- CENELEC & ETSI have demonstrated that joint work is possible, with a flexible “can do” attitude
- Co-operation needed at international level (IEC, CISPR, ITU?)
- Member States need to take an active part in standardization.

- The RED puts essential requirements on radio radiocommunication and radiodetermination equipment for efficient & effective use of the spectrum
 - Biggest single advance
 - Sharing parameters are known
- There is no SRD band
- Impact on non-radio equipment still not considered at spectrum planning stage
- Remember that standardization can only influence new equipment
 - Consider cost of “retro-fit” measures for existing equipment
- Need to promote use of quality cables/connectors in domestic installations^{MS1}

Slide 11

MS1

Remind that MS need to take part in strandardisation - collaborative process admins & industry Secretariat can pass messages, but can not do your work for you.

Michael Sharpe, 09/12/2014

- Compatibility is very difficult and expensive to “retro-fit”
- In future re-farming exercises, compatibility issues (including with non-radio systems) should be assessed before authorization decisions are taken.

Thank you for your attention



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3GPP website (www.3gpp.org)

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