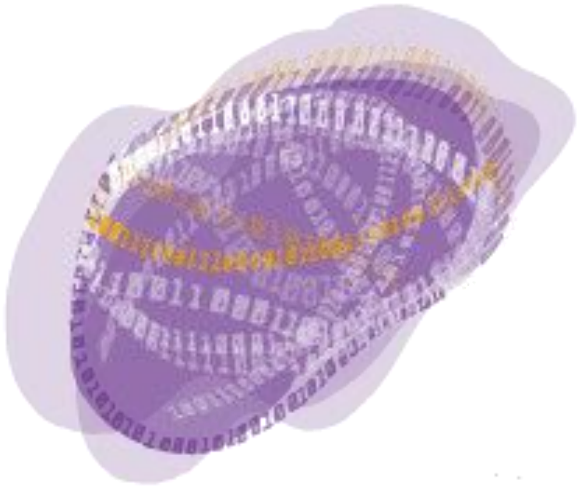
Machine-to-machine communications

The future is already here



PTS Swedish Post and Telecom Authority

Current agreed ECC M2M position

Common key requirements for M2M applications today include:

- Low power and low duty cycle
- Moderate requirements on robustness and latency

- High density in urban environments
- Low per-device cost solutions
- Installed for a long period of time

- In many cases frequencies below 1 GHz due to propagation characteristics
- Usage of commercial networks responding to various needs

Given this context:

- No strong case for the specific designation of frequency bands for M2M.
- Most M2M applications can be carried over SRD, RLAN, PMR or WBB.
- Frequency bands can be made available for M2M through licence exempt or designation for various applications on a technology neutral basis.

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Fifth generation mobile technology (5G)

When - 5G aims to address the demands and business contexts of 2020 and beyond.

Why - An expected fully mobile and connected future society where a broad range of use cases and business models are expected.

What – An envelope of performance to meet key requirements for future M2M (including IoT) applications. This enhanced performance is expected to be provided along with the capability to control a highly heterogeneous environment.

How

- Modular network functions
- Functionality deployed and scaled on demand
- Possibility to be sliced into several overlay core networks

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What happens in the meantime

When things are connected, we believe they have potential to become platforms for change. As the development towards more or less intelligent and interconnected M2M and IoT solutions continues, existing businesses will need to develop together with them.

This change has already started in many aspects and happens while we meet, and consequently we cannot wait until a mature 5G architecture is in place.

As soon as possible we need to find a general strategy to address the management of related spectrum needs and demands.

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Management of spectrum demands

Our preferred means of managing spectrum needs and demands for an emerging application or service are suitable for the vast majority of cases and sectors:

1. Use of commercial networks or other existing infrastructure (including possibility for priority within a system)
2. Using already available harmonised frequency bands
3. Shared use of near future harmonised license exempt bands
4. National ad hoc solution, where dedicated spectrum may be an option

More rarely, additional options (in order of priority) may also be considered:

5. Harmonised licensed shared access
6. Harmonised dedicated spectrum outside the range considered as “prime spectrum”
7. Harmonised dedicated spectrum within the range considered as “prime spectrum”

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Topical sectors - ITS and Smart grid

Intelligent Transport Systems (ITS) is an important part of measures with the objective reducing the number of road fatalities and improving the efficiency of traffic systems in Europe.

Two core areas have been identified in development of ITS; electrification and connectivity.

A smart energy grid is understood as “computerizing” the electric utility grid and includes adding two-way digital communication technology to devices associated with the grid.

This kind of solution can support monitoring of energy flows and adjust to changes in energy supply and demand accordingly. Important objectives are adapting to real-time consumption and better integrating renewable energy into the grid.

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