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|  |  Temp1  |
| FM 49 Radio Spectrum for PPDR |  |
| Helsinki, 14 - 15 November 2011 |  |
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| Date issued:  | 14 November 2011 |
| Source: | ECO |
| Subject: | FM49 Roadmap |
| NPassword protection required? (Y/N)  |
|  |
| Summary:  |
| Draft FM49 Roadmap as agreed during FM49#2 |
| Proposal:  |
| This Roadmap should be finally discussed and adopted at the FM49#3 meeting. It forms the basis for the work towards a draft ECC Report that will begin now. |
| Background:  |
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Roadmap Proposal BB-PPDR

**WG FM is requested to endorse this roadmap proposal in April 2012**

***Action plan***

*Endorsement of the Roadmap by WG FM in April 2012*

1. *Step – Consolidation of the requests/demand*

*-Defining the user requirements and needs;*

 *- Capacity;*

 *- Functionality (basic set of applications, requirements catalogue);*

 *- interoperability.*

 *Defining needs of harmonisation in terms of*

 *- technology standards;*

 *- Interoperability (user needs, infrastructure needs);*

 *- Commercial, dedicated networks and combined (hybrid) solutions*

 *[Short term solutions under ECC/DEC/(08)05 (such as a new LTE option in the 70 cm band)]*

*2. Step - Discussion of frequency options*

*The second step includes also in parallel possible spectrum engineering studies performed in WG SE. Such studies should be proposed to WG FM as soon as there is agreement that an option should be investigated.*

*- identify bandwidth requirements;*

*- identify dedicated frequency band (minimum harmonisation, e.g. tuning range).*

*The two steps above are covered by an ECC Report.*

*Minimum time needed to create the ECC Report: 2 years, i.e. expected date for submission to the approval process is in end of 2013*

*This may be followed by the development of a proposed regulatory solution for BB-PPDR in a new ECC Decision.*

***Annex: Detailed discussion (serves as a template for the draft ECC Report content table)***

1. Identify and investigate the demand for BB-PPDR

1.1 contained in the ETSI System Reference Document TR 102 628

1.2 contained in available National studies

1.3 additional information from stakeholders

To develop an application catalogue in FM49 that reflects the needs and demands.

Note FM49(11)003 as an input document for this development

1.4 Applications for BB-PPDR

 FM49(11)003 and information from ETSI TR 102 628

1.5 Operational Requirements for mission-critical BB-PPDR applications

Clarify the operational requirements for mission critical broadband PPDR applications (may also include some experience learned from disaster/crisis situation in the past)

1.6 Symmetry / asymmetry of the demand, local-temporary or permanent and wider coverage.

1.7 Dedicated networks, use of public networks, combined (hybrid) solution incl. National and international roaming

Note: In those cases where a dedicated network is not considered necessary for any reason, commercial operators and organisations are invited to present a possible scenario to meet the requirements for mission critical broadband PPDR services and the related impacts and spectrum requirements

Both options, dedicated networks or to use commercial networks for PPDR services should be left to each sovereign country and hence will be covered by the ECC Report. This should be done in a balanced manner as much as possible.

How to maximize economies of scale and competition is an aspect that may also be considered.

General cost considerations

1.8 Publicly available standards

Commercial technology standards as well as PPDR specific technology standard including a comparison of features and facilities. This also includes open public standards in support of interoperability and interoperability testing, otherwise there is no real interoperability.

**[**1.9 Possibilities for interim solutions or BB-PPDR test demonstrations, e.g. in the framework of ECC/DEC/(08)05 (NB and WB) in the frequency range 380-470 MHz

Study LTE 1.4 MHz (or even wider BW) FDD, e.g. in 400 MHz PMR/PAMR duplex bands

(gradual implementation, standard available ? which bitrates are achievable and which bandwidth is really needed incl. guardbands towards NB/WB PMR/PAMR? Question: ask WGSE to study? Can possibly not be harmonised but an interim solution for some). -> in square brackets since official request from ETSI or by an Administration is needed as well as support from other administrations according to the RoP.**]**

1.10 Need for Interoperability

 What precisely provides limits for interoperability?

 Define interoperability requirements

User equipment requirements

Infrastructure needs

1.11 Need for harmonisation

What precisely provides limits to harmonisation, in other words: when is a solution not considered anymore to be a harmonisable solution. This may be looked upon from the perspective of spectrum harmonisation as well as network harmonisation ?

1.12 Define Definitions and terms

 See ITU-R Report M.2033 and Resolution 647. Note: ITU-R M.2033 is subject to revision.

2. Frequency opportunities to be considered

 2.1 wider coverage, permanent

 2.1.1 Extent of dedicated spectrum needed

2.1.2 Options to be developed

 Take into account existing networks in 380-470 MHz under ECC/DEC/(08)05

Consider future and existing bands identified to IMT when designating available spectrum for PPDR broadband applications, if possible below 1GHz. I.e. BB-PPDR is part of future major re-farming action if so established.

Investigate the results of PT FM38 in FM49(11)07

 2.2 local temporary BB- hot spots for PPDR

 2.2.1 Extent of dedicated spectrum needed

2.2.2 Options to be developed

2.3 Other components of PPDR networks

Other components may be satellite or FS links to connect with the backbone network. Such spectrum use can possibly be seen as not being subject to PT FM49 discussions. These links rather should use the existing regulations for such radio services to provide necessary service coverage expansion and do not need additional frequency opportunities.

3. Define the framework for compatibility and sharing studies

 Note: Content of Chapter 3 can only be developed after knowing the frequency options defined in Step 2 of the work