Public Safety Spectrum & Systems: Which Pathways to Broadband PPDR Networks?

Description:
PPDR usage worldwide is concentrated on a limited number of frequency bands. Among them, the 400 MHz is the most currently used for narrowband systems.

At the WRC-15 in November 2015, a decision is to be taken on allocation of frequencies for broadband PPDR spectrum. The 700 MHz is the best candidate at world level, with distinct scenarios being considered.

TETRA-like narrowband networks have served PPDR issues well in the last decade. Major PPDR users and industry associations have defined LTE as the technology for broadband PPDR systems.

This report presents the considered pathways to broadband PPDR spectrum and systems for the next decade.

Slideshow Contents:
1. Status of PPDR allocations
   - PPDR spectrum allocations mostly below 1 GHz
2. PPDR over LTE
   - PPDR over LTE-A
3. Business models for broadband PPDR
   - PPDR spectrum allocations mostly below 1 GHz
   - PPDR systems timeline
   - Two major routes, six business models, three major live initiatives
   - Business models overview

Contents:
1. Executive Summary
   1.1. Status of PPDR allocations
   1.1.1. Narrowband spectrum
   1.1.2. Broadband spectrum
   1.2. PPDR over LTE-A
   1.3. Business models for PPDR
2. Methodology & definitions
   2.1. General methodology of IDATE's reports
   2.2. What is PPDR?
3. Status of PPDR allocations
   3.1. Narrowband Spectrum
   3.1.1. The 400 MHz band is used for narrowband PPDR in all Regions.
   3.1.2. The 800 MHz band in Regions 2 and 3 (Asia-Pacific, USA)
   3.1.3. The 700 MHz band is also used in Region 2
   3.2. Broadband PPDR spectrum
   3.2.1. In the USA, the 700 MHz band has already been allocated to PPDR services
   3.2.2. In Asia-Pacific, the APT700 MHz plan is likely to be adopted everywhere
   3.2.3. In Europe, the 700 MHz is a candidate band alongside the 400 MHz
   3.2.4. Alongside the 700 MHz band, the 400 MHz (410-430 MHz and 450-470 MHz) is one of the most propitious candidates for broadband PPDR in Europe
   3.2.5. Other bands
   3.2.6. Wrap-up: Potential bands for broadband PPDR spectrum
4. PPDR over LTE-A
4.1. Consensus around LTE for PPDR networks
4.2. Current LTE is not suitable
4.2.1. Extended capabilities are expected with LTE-Advanced
4.2.2. Spectrum and radio access sharing capabilities

5. Business models for PPDR
5.1. Narrowband/wideband PPDR network as long as possible
5.2. Narrowband PPDR network + MVNO agreement for broadband services
5.2.1. Description
5.2.2. Advantages
5.2.3. Disadvantages
5.2.4. Spectrum
5.2.5. Case studies
5.3. Narrowband PPDR network + broadband capabilities
5.3.1. Description
5.3.2. Advantages
5.3.3. Disadvantages
5.3.4. Spectrum
5.3.5. Case studies
5.4. Commercial mobile network with commercial spectrum and specific requirements
5.4.1. Description
5.4.2. Advantages
5.4.3. Disadvantages
5.4.4. Spectrum
5.4.5. Case study: BDBOS (Germany)
5.5. Satellite services in combination with commercial LTE networks with specific requirements
5.5.1. Description
5.5.2. Advantages
5.5.3. Disadvantages
5.5.4. Spectrum
5.5.5. Case studies
5.6. Dedicated LTE network with commercial (or shared) spectrum
5.6.1. Description
5.6.2. Advantages
5.6.3. Disadvantages
5.6.4. Spectrum
5.6.5. Case study: the ESMCP in the UK
5.7. Dedicated PPDR network with PPDR spectrum
5.7.1. Description
5.7.2. Advantages
5.7.3. Disadvantages
5.7.4. Spectrum
5.7.5. Case study: FirstNet
5.8. Business models wrap-up
5.8.1. Narrowband PPDR as long as possible
5.8.2. Narrowband PPDR+MVNO
5.8.3. Narrowband PPDR + LTE with specific requirements / Narrowband PPDR + broadband
5.8.4. Narrowband PPDR + LTE + Satellite
5.8.5. Dedicated LTE network with commercial spectrum
5.8.6. Dedicated PPDR network with PPDR spectrum

6. Annexes
6.1. Current PPDR networks
6.2. A complex landscape to deal with PPDR spectrum
6.3. Current LTE bands below 1 GHz

7. Main references

8. List of acronyms

Tables
Table 1: Frequency bands below 1 GHz currently used for PPDR applications
Table 2: Business models overview
Table 3: The channeling arrangement proposed by CEPT for WRC-15 in the 700 MHz with options considering Programme Social Making Events (PMSE) and PPDR
Table 4: Potential candidate bands for broadband PPDR by region
Table 5: Overview of European TETRA networks in operation

Figures
Figure 1: PPDR systems timeline
Figure 2: Recent developments on the 700 MHz band in Europe
Figure 3: Re-planning of the 400 MHz band for PPDR, using the 700 MHz duplex gap for SDL
Figure 4: PPDR frequency bands, used for public safety
Figure 5: Current narrowband and wideband PPDR spectrum in place at least until 2025/2030
Figure 6: Estimated timeline for device to device and relay features availability
Figure 7: The big PPDR picture
Figure 8: Blue Light Mobile context
Figure 9: Role of ASTRID as an integrator
Figure 10: Potential evolution of the PPDR networks
Figure 11: Basic concept of the pilot
Figure 12: The Emergency Services Mobile Communications Programme (ESMCP)
Figure 13: Current roadmap snapshot
Figure 14: Dedicated public safety spectrum for FirstNet in the band class 14 in the upper 700 MHz
Figure 15: How each US state decides to join FirstNet
Figure 16: Business models overview: Two major routes towards broadband PPDR networks
Figure 17: The TETRA or TEDS 'as long as possible' business model
Figure 18: TETRA PPDR networks and MVNO
Figure 19: Narrowband PPDR + LTE networks with specific PPDR requirements / Narrowband PPDR + broadband capabilities
Figure 20: Mobile LTE networks combined with satellite capabilities
Figure 21: Dedicated LTE network, commercial spectrum
Figure 22: The dedicated PPDR network with PPDR spectrum
Figure 23: Digital PPDR voice networks in Europe
Figure 24: Bodies involved in the PPDR spectrum harmonisation process
Figure 25: CEPT groups dealing with broadband PPDR

Ordering:
Order Online - http://www.researchandmarkets.com/reports/3134270/
Order by Fax - using the form below
Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct and select the format(s) you require.

Product Name: Public Safety Spectrum & Systems: Which Pathways to Broadband PPDR Networks?
Web Address: http://www.researchandmarkets.com/reports/3134270/
Office Code: SCH3TXFK

Product Formats
Please select the product formats and quantity you require:

<table>
<thead>
<tr>
<th>Product Format</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic (PDF) - 1 - 5 Users</td>
<td></td>
<td>USD 2339</td>
</tr>
<tr>
<td>Electronic (PDF) - Enterprisewide</td>
<td></td>
<td>USD 3508</td>
</tr>
</tbody>
</table>

Contact Information
Please enter all the information below in BLOCK CAPITALS

Title:  
Mr  [ ]  Mrs  [ ]  Dr  [ ]  Miss  [ ]  Ms  [ ]  Prof  [ ]
First Name: ___________________________________________  Last Name: ___________________________________________
Email Address: * ___________________________________________
Job Title: ___________________________________________
Organisation: ___________________________________________
Address: ___________________________________________
City: ___________________________________________
Postal / Zip Code: ___________________________________________
Country: ___________________________________________
Phone Number: ___________________________________________
Fax Number: ___________________________________________

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:
Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:

<table>
<thead>
<tr>
<th>Account number</th>
<th>Sort code</th>
<th>Swift code</th>
<th>IBAN number</th>
<th>Bank Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>833 130 83</td>
<td>98-53-30</td>
<td>ULSBIE2D</td>
<td>IE78ULSB98533083313083</td>
<td>Ulster Bank, 27-35 Main Street, Blackrock, Co. Dublin, Ireland.</td>
</tr>
</tbody>
</table>

If you have a Marketing Code please enter it below:

Marketing Code: ____________________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World