**FM(12)092**

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| **Working Group FM** | | |
| **75th Meeting** | |  | |
| **Minsk, 24 – 28 September 2012** | |  | |
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| **Date issued:** | **8 August 2012** | | |
| **Source:** | **ECO** | | |
| **Subject:** | **Results of the questionnaire regarding the existing usage in the frequency bands 870-876 MHz / 915-921 MHz** | | |
| N  Group membership required to read? (Y/N) | | | |

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| **Summary**  This questionnaire was sent out from the Office on 30 April 2012. The official deadline was the 23 June 2012.  **By 1 August 2012, a total of 43 countries provided an answer to the questionnaire.**  All the responses are contained in the table attached to this summary. |
| **Proposal**  WG FM is invited to consider the responses and the summary for necessary actions to be taken on the subject.  SRD/MG is invited to provide an assessment based on the results of the questionnaire and make a proposal to WGFM with regard to the impact on the actions under the UHF roadmap.  Administrations that have not provided an answer to the two questions yet are kindly requested to do so to have the spectrum inventory information on 870-876/915-921 MHz as complete as possible. |

1. **Responses**

Replies were received from 43 administrations by 1 August 2012 (countries in bold).

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| **Albania**  **Andorra**  **Austria**  Azerbaijan  **Belarus**  **Belgium**  **Bosnia Herzegovina**  **Bulgaria**  **Croatia**  **Cyprus**  **Czech Republic**  **Denmark**  **Estonia**  **Finland**  **France**  **Georgia**  **Germany**  **Greece**  **Hungary**  **Iceland**  **Ireland**  **Italy**  **Latvia**  **Liechtenstein** | **Lithuania**  **Luxembourg**  **Macedonia**  **Malta**  Monaco  **Montenegro**  **Moldova**  **Norway**  **Polen**  **Portugal**  Romania  **Russian Federation**  San Marino  **Serbia**  **Slovak Republic**  **Slovenia**  **Spain**  **Sweden**  **Switzerland**  **The Netherlands**  **The United Kingdom**  **Turkey**  **Ukraine**  Vatican City |

Two questions were included in the questionnaire and all administrations which answered have provided responses to both questions.

**1 Existing Usage in 870-876/915-921 MHz**

This overview shows that the real implementation of PMR/PAMR is not high in Europe, despite of having ECC/DEC/(04)06 and reflection in the ECA table. PMR/PAMR systems are currently used in only six countries in this frequency band and several countries reported that PMR/PAMR has been allocation in their country but that network operation either has been terminated, or the network rollout being very limited, or network not fully put into operation, or either be simply unused (no licences awarded). One country plans to move from defense system usage towards PMR/PAMR usage. The PMR/PAMR usage is in some cases only in parts of the band (Georgia only 870-876 MHz, Poland 870-874.44 MHz, Spain: 4 local licenses. Ukraine reported to terminate usage by 1 January 2016.

There is considerable military usage in the band. A nearly equal number of countries are now also planning with E-GSM-R, although this needs still to materialize in the market.

The ARNS situation (time limited according to RR 5.323) may apply also to Azerbaijan who did not answer the questionnaire (this is not esplicitly recorded since ARNS is being phased out).

**Responses received by 1 August 2012**

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| **Country** | **What is the current use of the bands 870-876 MHz and 915-921 MHz in your country?** | **What are your short, medium and long term plans with regard to the future use?** |
| Albania | 870-876 and 915-921 MHz bands are identified as the favorite for Tactical Radio Relay, especially for cross-border cooperation | No change plans. |
| Andorra | Usage PMR/PAMR designated but not implemented | No change planned |
| Austria | Currently, the sub band 873 – 876 / 918 – 921 MHz is used according to the amended ECC/DEC/(02)05 for the extension of the GSM-R band.  The sub band 870 – 873 / 915 – 918 MHz is currently not used (foreseen for PMR systems). Any European harmonisation measures are welcomed. | No changes are foreseen with respect to the extension band for GSM-R.  Concerning the other part of this band the Austrian Administration can follow any additional harmonisation measures in principal. |
| Belarus | ARNS (time limited), PMR/PAMR allocated but not used | No further plans |
| Belgium | Governmental use (e.g. Unmanned Aeronautical Vehicle, Unmanned Ground Vehicle or Tactical Radio Relay); | E-GSM-R (also reflected in ECC Decision (04)06 and ECC Decision (02)05) |
| Bosnia Herzegovina | PMR/PAMR as per Rule 50/2010 which transponded stipulations of T/R 25-05. However, No licensed issued nor planned. | No plans for change at the moment |
| Bulgaria | The whole band 870-876/915-921 MHz (2x6 MHz) is used by governmental applications (defense usage). Governmental usage will stay in the future and will not change. | No change |
| Croatia | Military services, PMR/PAMR/ E-GSM-R. No PMR/PAMR networks are implemented/in operation in the market and intention to close the governmental use in this band. | Only E-GSM-R planned yet |
| Cyprus | The frequency bands are currently being used according to the frequency plan by the government (TRR, lower half of duplex band) and by digital land mobile PMR/PAMR (no licenses awarded) | No future use planned yet. |
| Czech Republic | The guard bands 870-872/915-917 MHz are not used and are not designated for any application.  The bands 872-875.8/917-920.8 MHz are designated for applications in accordance with ECC Decision (04)06 (i.e. category 2). Current holder of block assignment has terminated operation of CDMA network, however licence is valid until 2015.  The bands 875.8-876/920.8-921 MHz are guard bands (no utilisation). | Short plans: There is no short plan until we will get information about future plan from the licence holder.  Medium plans and long term plans: The CTO has no specific plans; however, future utilisation will reflect European harmonisation, if required. |
| Denmark | No use | SRD and RFID |
| Estonia | No use. Reserved until public competition. | Waiting for results of international working groups. Will not decide plans with regard to the future use before decisions are made in international level. |
| Finland | Governmental use until the end of 2013  Designated for PMR/PAMR according to ECC/DEC/(04)06 but no actual PMR/PAMR users on these bands  Other usage: test networks | Ficora supports CEPT studies on additional UHF spectrum for SRD, RFID and smart metering applications. Based on these studies these frequency bands may be considered for the above mentioned applications. |
| France | Governmental use for several kind of applications such as unmanned systems (air, sea and ground), remote control and telemetry, data links, etc. | A governmental usage of those bands for the applications mentioned above will be maintained in the future. Sharing of the 870-873 MHz band with secondary SRD applications is not considered. |
| Georgia | 870-876 MHz band is used by CDMA-850 systems and radio-microphone devices.  915-921 MHz is currently used by SRD applications and radio-modems. | No change planned |
| Germany | 870-873 MHz/ 915-918 MHz  Governmental use(implemented, exclusive usage)  873-876 MHz / 918-921 MHz  E-GSM-R (license awarded), PMR/PAMR licenses possible but not awarded. | No change planned |
| Greece | Exclusively Governmental Use (Tactical Communication System, Radio Relay) | No change planned |
| Hungary | Not used at present | 2. 870–873/915–918 MHz planned for wide band PMR/PAMR land mobile radiotelephone systems.  2. & 3. 873–876/918–921 MHz planned for wide band PMR/PAMR land mobile radiotelephone systems, including E-GSM-R systems. |
| Iceland | Fixed (point to point links) | Short term plan: Fixed (point to point links)  No medium or long term plans |
| Ireland | The bands 872 – 876 MHz and 917 – 921 MHz, are licensed within Ireland until December 2015 for Wideband Digital Mobile Data Services.  The network has not yet been built up, and has minimal operation within Ireland (limited only to north county Dublin). The technology used is flash ofdm.  870 – 872MHz and 915 – 917 MHz are currently unused in Ireland. | ComReg has not yet determined its plans with regard to future use within these bands; however, a review of future use of the bands has been included in ComReg’s work programme for the period 2011 – 2013, for attention towards the end of this period. |
| Italy | MOBILE NETWORK by DEFENCE and SECURITY BODIES AND C2 UAV (whole 2 x 6 MHz) | No changes planned |
| Latvia | Identified for Wide Band Digital Land Mobile PMR/PAMR systems (according to ECC/DEC/(04)06)  At this moment the band is not used. | Short term (3-5 years):  Wide Band Digital Land Mobile PMR/PAMR systems (according to ECC/DEC/(04)06)  Long term (5-10 years):  no changes or adjustment to harmonised use of the band in Europe |
| Liechtenstein | 870 – 873 MHz: Until today no RIS and no use.  873 – 876 MHz: RIS RIR0501-01 and RIR0501-05.  Land mobile/GSM; individual assignment due shortly  915 – 918 MHz: Until today no RIS and no use.  918 – 921 MHz: RIS RIR0501-03 and RIR0501-05.  Land mobile/GSM; Individual assignment due shortly | Short and Medium term plans:  870 – 873 MHz: reserved for future use by SRDs.  873 – 876 MHz: Primary allocation to GSM-R and use by GSM-R.  915 – 918 MHz: reserved for future use by SRDs.  918 – 921 MHz: Primary allocation to GSM-R and use by GSM-R.  Long term plans:  870 – 873 MHz: reserved for future use by SRDs.  873 – 876 MHz: Primary allocation to Railway mobile communication systems.  915 – 918 MHz: reserved for future use by SRDs.  918 – 921 MHz: Primary allocation to Railway mobile communication systems. |
| Lithuania | No use | PMR/PAMR according to ECC/DEC/(04)06 |
| Luxembourg | 1. Although the frequency band is a shared civil/military band, no military application (such as tactical radio relay) is currently in use.  2. The frequency band has been allocated to PMR/PAMR applications (in accordance with ECC DEC (04)06) for some years, but no licences have yet been granted.  3. Currently there is no intention to extend the GSM-R frequency range to include as well the band 873-876MHz/918-921MHz.  4. Luxembourg recently granted a temporary licence for the band 870-876MHz to an energy utility company for utilisation of smart grid applications. | In Luxembourg, there is a request for this band for smart metering applications, which is mainly intended for carrying out tests of the relevant radio equipment. |
| Macedonia | The bands 870-876 MHz and 915-921 MHz are allocated for Fixed and Land Mobile Service (no licenses awarded) | Plans for GSM-R / PMR/PAMR |
| Malta | Not used | No plans |
| Moldava | 870-876 MHz – SRD possible;  915-921 MHz in pair with 870-876 MHz for PMR/PAMR is provided by National Radiofrequency Table, but there are no registered or operating PMR/PAMR networks; | No plans |
| Montenegro | Digital PMR/PAMR (no license awarded) and TRR (Tactical radio relay) in lower half of the band | In further planning of this band, the most recent technological trends shall be taken into consideration, as well as the experience of the CEPT member countries and realistic needs of Montenegrin users |
| Norway | 870,5-876 & 915,5-1921 designated for individual service neutral license  No current use | Awaiting international harmonisation |
| Poland | 870 – 874.44 MHz: individual licensed PMR/PAMR applications, 869.4-874.44 MHz (downlink) paired with 824.4-829.44 MHz (uplink), CDMA, CDMA 2000 1xEV-DO)  874.44 – 876 MHz not used  915 – 921 MHz not used | medium or long term plans:  a) re-farming (release) of the frequency range 870 – 874.44 MHz - moving CDMA and CDMA 2000 1xEV-DO applications into another frequency band  b) introduction of harmonized frequency usage in the bands 870-876/915-921 MHz in accordance with CEPT (and/or EU) regulations, e.g. extension of GSM-R band (E-GSM-R i.e. 873-876/918-921 MHz) |
| Portugal | - 870-873 MHz is being tested for a smart metering system, by the energy distribution operator;  - 873-876 MHz paired with 918-921 MHz is being used by military; | Some adjustments might occur on the quantity of spectrum in use in the 870-876/915-921 MHz band in the short/medium term. GSM-R extension would be possible inside core GSM-R band since only 2x2 MHz being used currently. |
| Russian Federation | Band 870-876 MHz  ARNS on primary basis  Band 915-921 MHz  ARNS on primary basis  Space operation service for telemetry, tracking, and control purposes  Mobile, except aeronautical mobile on secondary basis  Band 916-921 MHz  RFID | Decommissioning of ARNS after the end of depreciation period and deployment same service in other bands |
| Serbia | Defense Systems | Medium term plan is to use the band for PMR/PAMR |
| Slovak Republic | 872 - 876 MHz digital wideband cellular network - CDMA; (duplex +45 MHz)  917 - 921 MHz digital wideband cellular network - CDMA, duplex -45 MHz; (General license for terminals) | Yes, but only for frequency sectors 870 - 872/915 - 917 MHz and it also depends on results of study of compatibility. |
| Slovenia | Land military systems in 870 – 873 MHz (MS) / 915 – 918 MHz (BS). PMR/PAMR possible in upper half of the band but no licenses awarded. | Extension of land military systems or PMR/PAMR for the upper half of the band |
| Spain | There are 4 local licences in Spain, broadband digital technology for applications as M2M, meter reading and data. Technologies could be LTE or WiMax. | No change planned. |
| Sweden | No use | No short term plans for this band. Awaiting the results of the EC Spectrum Inventory. |
| Switzerland | 870 – 873 MHz: Until today no RIS and no use.  873 – 876 MHz: RIS RIR0501-01 and RIR0501-05.  Licences will be assigned shortly  915 – 918 MHz: Until today no RIS and no use.  918 – 921 MHz: RIS RIR0501-03 and RIR0501-05.  Licences will be assigned shortly | Short and Medium term plans:  870 – 873 MHz: reserved for future use by SRDs.  873 – 876 MHz: Primary allocation to GSM-R and use by GSM-R.  915 – 918 MHz: reserved for future use by SRDs.  918 – 921 MHz: Primary allocation to GSM-R and use by GSM-R.  Long term plans:  870 – 873 MHz: reserved for future use by SRDs.  873 – 876 MHz: Primary allocation to Railway mobile communication systems.  915 – 918 MHz: reserved for future use by SRDs.  918 – 921 MHz: Primary allocation to Railway mobile communication systems. |
| The Netherlands | Military | Military use for the foreseeable future, new equipment has recently been purchased. |
| Turkey | 870-876 MHz: Designated to PMR/PAMR and Fixed Links. No implementation yet.  915-921MHz: Designated for PMR/PAMR. No implementation yet. | No plans yet. |
| Ukraine | In accordance with the Plan of radio frequency resource usage in Ukraine the band of 870-876 MHz is actually used by REFs of CDMA-800 cellular communication systems, to organize of BS->AS communication links (deadline of technology usage – 1st January, 2016).  Besides, both specified bands are used by special users REFs, relating to radio navigation and radiolocation service (for example, RSBN/PRMG), and will be used till the end of its operation term. | For a present day, there are no plans concerning conversion of the bands 870-876 MHz and 915-921 MHz in future, after the termination of their use by above-mentioned REFs. |
| United Kingdom | In the UK the bands 870-872 MHz and 915-917 MHz are allocated to the Military.  The 872-876 MHz and 917-921 MHz bands are allocated for civil use (but not used for some time now).  The Met Service operates Wind Profiler Radar (1 site) in the 915 MHz band. The use of this technology will continue and further sites may be added in future. | The UK military have identified their bands for commercial sharing opportunities under its Defence Spectrum Reform work. Should the use of these bands be changed to SRD, MOD will review any contract it has agreed and consider its position.  The 2011 UK Government initiative, “Enabling UK growth – Releasing public spectrum, Making 500 MHz of spectrum available by 2020” (page 35) identified that there may be the opportunity to release the military bands 870-872 MHz and 915-917 MHz.  <http://www.culture.gov.uk/images/publications/Spectrum_Release.pdf>  In 2009 Ofcom consulted on the release of the civil bands <http://stakeholders.ofcom.org.uk/consultations/872_876_mhz/>  Ofcom plans to release the civil spectrum and will take into account developments in CEPT to ensure best value to UK citizens/consumers. |

**Information received from the UIC WGFM Group:**

This information shows that the planned E-GSM-R is likely to be used at local hotspots such as some metropolitan stations or big shunting sites only in the vast majority of cases. At the present time, it should also be noted that 3GPP has not assigned the Mobile Class Mark (identity for E-GSM-R capability in the GSM protocol for GSM equipment having implemented the E-GSM-R frequencies), i.e. E-GSM-R is in planning stage with first tests to be expected in 2013.

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| **Land** | **Use Case** | **assigned** | **usage planed** | **not planed** |
| DB (DE) | shunting, Train Radio | x |  |  |
| Network Rail (UK) | shunting, GPRS Monitoring |  | x |  |
| Adif (Spain) | shunting, hot spot coverage etc. |  | x |  |
| SBB (SUI) | Hot spot coverage |  | x |  |
| ProRail  (NL) | shunting, PMR/short range radio, local capacity enhancements for telemetry applications, migration to next generation radio services |  | x |  |
| ÖBB (A) | shunting (yards), coverage of hot spots or disposed application areas |  | x |  |
| Trafikverket  (SE) | Possibly to use during and after migration to other technology for the railway |  | x |  |
| FTA  (FIN) | shunting, switch-man and train brake testing communications and during the migration period from GSM technology to the next generation radio technology |  |  | x |
| RFF (FR) | plans to use the ER-band in congested or subject to congestion areas, like Paris large railway stations or shunting areas, some important railway nodes etc. |  | X |  |

Military usage: The NATO JOINT CIVIL AND MILITARY FREQUENCY AGREEMENT (NJFA), defines in the frequency range 790-960 MHz essential military requirements from 10 to 60 MHz for tactical radio relay of which 10 MHz should be harmonised spectrum for training in border areas, subject to bilateral/ multilateral agreements. Furthermore, based on present equipment, the deployment of a Corps-size Reaction Force requires 50 MHz of spectrum, although it is recognised that some countries will have problems fulfilling such a requirement.

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|  | **870/915** | **871/916** | **872/917** | **873/918** | **874/919** | | **875/920** | **876/921** |
| **Andorra** |  | | | | | | |
| **Albania** |  | | | | | | |
| **Austria** |  | | | E-GSM-R   |  |  | | --- | --- | |  | Not used or going to be unused | |  | Planned E-GSM-R | |  | Usage based on PMR/PAMR licences | |  | Governmental/military usage | | | | |
| **Belarus** | ARNS (phased out) | | |  | | | |
| **Belgium** |  | | | E-GSM-R | | | |
| **Bosnia Herzegov.** |  | | | | | | |
| **Bulgaria** |  | | | | | | |
| **Croatia** |  | | | E-GSM-R | | | |
| **Cyprus** |  | | |  | | | |
| **Czech Republic** |  | | Usage terminated | | | | |
| **Denmark** |  | | | | | | |
| **Estonia** |  | | | | | | |
| **Finland** | Governmental use terminates | | | | | | |
| **France** |  | | | | | | |
| **Georgia** | 870-876: CDMA-850 Network, 915-921 possible for SRD/RFID | | | | | | |
| **Germany** |  | | | E-GSM-R | | | |
| **Greece** |  | | | | | | |
| **Hungary** |  | | | E-GSM-R | | | |
| **Iceland** | Limited p-t-p links, time-limited | | | | | | |
| **Ireland** |  | | | | | | |
| **Italy** |  | | | | | | |
| **Latvia** |  | | | | | | |
| **Liechtenstein** |  | | | E-GSM-R | | | |
| **Lithuania** |  | | | | | | |
| **Luxemburg** | Request for Smart Metering | | | | | | |
| **Macedonia** |  | | | E-GSM-R | | | |
| **Malta** |  | | | | | | |
| **Moldava** |  | | | | | | |
| **Montenegro** |  | | |  | | | |
| **Norway** |  | | | | | | |
| **Poland** | 870-874.44 MHz CDMA 2000 EV-DO, rest unused | | | | |  | |
| **Portugal** | Request for Smart Metering | | |  | | | |
| **Russian Federation** | RFID 916-921 MHz, (ARNS phased out), satellite TTC | | | | | | |
| **Serbia** | Medium term plan to move from defense systems to PMR/PAMR | | | | | | |
| **Slovak Republic** |  | | CDMA Network | | | | |
| **Slovenia** |  | | |  | | | |
| **Spain** | 4 **local** licenses for M2M, Metering based | | | | | | |
| **Sweden** |  | | | | | | |
| **Switzerland** |  | | | E-GSM-R | | | |
| **The Netherlands** |  | | | | | | |
| **Turkey** |  | | | | | | |
| **Ukraine** | CDMA-800 systems, (deadline of technology usage – 1st January, 2016) | | | | | | |
| **UK** | Plus Wind Profiler (a site) and unused military allocation | | | | | | |

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