**Replies to CEPT Questionnaire on the use in 870-876 / 915-921 MHz**

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

**Table 14: List of CEPT administrations that responded to the Questionnaire**

|  |  |
| --- | --- |
| **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****Former Yugoslavian Republic of Macedonia****Malta**Monaco**Montenegro****Moldova****Norway****Poland****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.

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

**Figure 13: 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 [21] 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 defence 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. Five countries (Austria, Belgium, Germany, Liechtenstein and Switzerland) are at mid-2013 also planning with E-GSM-R, although this needs still to materialise 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 explicitly recorded since ARNS is being phased out).

**Individual Country Responses**

**Table 15: Responses received by 1 August 2012**

| **Country** | **What is the current use of the bands 870-876 / 915-921 MHz in your country?** | **What are your short, medium and long term plans with regard to the future** |
| --- | --- | --- |
| Albania | 870-876 and 915-921 MHz bands are identified as the favourite 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/DEC/(04)06 and ECC/DEC/(02)05) |
| Bosnia Herzegovina | PMR/PAMR as per Rule 50/2010 which transponded stipulations of ERC 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 (defence 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 | Indicated that only E-GSM-R is planned. However, Croatia has not deployed GSM-R in the GSM-R core band 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/DEC/(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 there is 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 / 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. However, deployment in GSM-R core band still in planning phase |
| 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 / 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.870-872 / 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 shortly915-918 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 873-876 / 918-921 MHz.4. Luxembourg recently granted a temporary licence for the band 870-876 MHz 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. |
| Former Yugoslavian Republic of Macedonia | The bands 870-876 / 915-921 MHz are allocated for Fixed and Land Mobile Service (no licenses awarded) | Plans for GSM-R / PMR/PAMR, however deployment in GSM-R core band still in planning phase |
| 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 / 915.5-921 MHz 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 MHzARNS on primary basisBand 915-921 MHzARNS on primary basisSpace operation service for telemetry, tracking, and control purposesMobile, except aeronautical mobile on secondary basisBand 916-921 MHzRFID  | Decommissioning of ARNS after the end of depreciation period and deployment same service in other bands |
| Serbia | Defence 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 shortly915-918 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 / 915-921 MHz in future, after the termination of their use by above-mentioned REFs. |
| United Kingdom | 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 has consulted on the use of the bands and has subsequently decided to permit a range of SRD based on the forthcoming entries in ERC Rec 70-03. |

**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. It should also be noted that recently in 2013 3GPP has 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). Studies on intra-system compatibility impact of E-GSM-R on E-GSM900, UMTS900 and LTE900 have been finally agreed in 3GPP. The results include power reductions for E-GSM-R base station emissions which makes E-GSM-R implementations less economic. In addition, improved radio modules for GSM-R are specified in ETSI which are likely to be carried into the interoperability specifications agreed at the ERA for the GSM-R core band (but not covering the E-GSM-R frequencies).

According to latest information in 03/2013, collected in ETSI TC RT in ETSI TR 103 134 [14], GSM-R (voice and data bearer) is deployed and covers around 68 000 km of tracks in Europe and this approximate figure is confirmed by the answers received in response to this questionnaire. In Europe, where the total railway network taken into account is 221 025 km, GSM-R coverage was planned for 149 673 km according to ETSI TR 102 627 [15], published in 11/2008. It also explains that in September 2007 the network comprised 60 507 km equipped with GSM-R infrastructure, of which 40 918 were in operation by that date. This means that GSM-R network implementation has to some extent slowed down in recent years below the figures which have been forecasted about 5 years ago.

The situation set out above makes it at relatively unlikely that widespread implementation of E-GSM-R in Europe will occur.

**Table 16: E-GSM-R plans**

| **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 the frequency range 790-960 MHz for essential military requirements. From 10 to 60 MHz is reserved 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.

The NJFA is going to be reviewed in the near future.

The CEPT ECC/WGFM civil/military meeting in November 2013 noted the approach taken by ECC WGFM for harmonisation of SRD applications in the UHF bands 870-876/915-921 MHz in ERC Recommendation 70-03 (used by 11 administrations for military applications in all or parts of the bands). This “soft-harmonisation” approach was considered appropriate. It provides a good example of the ECC's use of ‘soft harmonisation’, where existing services remain protected to the extent that national administrations deem it necessary, yet providing the opportunity for the harmonised development of new services in the majority of European countries. Administrations can freely decide which part of the ERC/REC 70-03 new entries they can implement – in line and in balance with incumbent use.

**Table 17: Use of 870-876 MHz and 915-921 MHz as indicated by CEPT administrations**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **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 licenses |
|  | Governmental/military usage |

 |
| **Belarus** | ARNS (phased out) |  |
| **Belgium** |  | E-GSM-R |
| **Bosnia Herzegovina** |  |
| **Bulgaria** |  |
| **Croatia** |  | E-GSM-R planned, however GSM-R not deployed in GSM-R core band yet. |
| **Cyprus** |  |  |
| **Czech Republic** |  | Usage terminated |
| **Denmark** |  |
| **Estonia** |  |
| **Finland** | Governmental use terminates |
| **France13** | Note: French comment from the WGFM #75 minutes Minsk[[1]](#footnote-1) |
| **Georgia** | 870-876: CDMA-850 Network, 915-921 possible for SRD/RFID |
| **Germany13** |  | E-GSM-R |
| **Greece** |  |
| **Hungary** |  | E-GSM-R planned, however deployment in GSM-R core band still in planning phase |
| **Iceland** | Limited p-t-p links, time-limited |
| **Ireland** |  |
| **Italy** |  |
| **Latvia** |  |
| **Liechtenstein** |  | E-GSM-R |
| **Lithuania** |  |
| **Luxemburg** | Request for Smart Metering |
| **FYROM** |  | E-GSM-R planned but GSM-R in the care band only in planning phase yet |
| **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 defence 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  |

The result may lead to a situation where many administration may have a spectrum usage opportunity for secondary applications in the band, however, some may not have in all or parts of the bands, mainly due to the unlimited in time military/governmental usage. A possible outcome after finalisation of the compatibility studies could therefore be to have entries in ERC/REC 70-03 [2] which could be implemented by administrations for those frequency opportunities where no military/governmental usage occurs.

Based on the preliminary indications from PT SE24 as well as the spectrum inventory information collected by means of the questionnaire for the bands 870-876 / 915-921 MHz, SRD/MG works on the basis of facing three different situations in the CEPT:

1. Some countries where all or parts of the bands could be used by SRD with rather simple spectrum access due to the underused or unused band situation;
2. In some countries, more sophisticated spectrum access is needed (e.g. E-GSM-R protection);
3. In some countries all or parts of the bands are used by governmental, mostly military usage. In some of these countries, this might be seen even as use on exclusive basis.

It is therefore necessary to keep the flexibility in the approach at the moment, and to avoid spectrum fragmentation by dividing spectrum over different applications. On the other side, some split may be unavoidable, also because there are applications needing a more predictable sharing environment than others.

1. Germany emphasised during the WGFM#75 meeting in Minsk that the bands 870-873 MHz and 915-918 MHz are designated exclusively for military radio applications and that it cannot be expected that they can be made available e.g. for short range device applications in the foreseeable future. France has the similar situation in the band 870-873 MHz. Other sub-bands outside of these mentioned frequencies may be considered for partial implementations. [↑](#footnote-ref-1)