



Electronic Communications Committee (ECC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)

**LICENCE EXEMPTION AND ITS IMPACT ON
THE FUNDING OF THE RADIO ADMINISTRATION**

Copenhagen, May 2006

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Licence exemption and its impact on the funding of the radio administration

1 INTRODUCTION

1.1 Aim and scope of the work

Licence-exempt use of spectrum is being considered and/or implemented more and more in CEPT administrations with potential consequences on the funding of the radio administration.

In that context this RA8 investigation aims at assessing the extent of licence exemption in CEPT administrations, determining the type of applications that are exempted or candidate for future exemption, and considering the pros and cons of licence exemption. The work also aims at finding out how administrations may cope with the impact of exemption or “commons”-like regimes on their work, the organisation of activities and the funding of the radio administration.

This report should therefore provide an informative overview of the current situation across CEPT administrations, giving administrations the opportunity to compare their approach to that of other countries. It is also a follow-up to ECC report 053 on “Cost allocation and accounting systems used to finance the radio administration” where the issue was raised briefly.

1.2 Licence exemption vs commons

A distinction was made in the questionnaire issued by RA8 between licence exemption and “commons” as follows:

- **Licence exemption** referred to the regulatory regime for a **particular application** for which no individual licence is required, as is the case for instance with VSAT at 14.25-14.50 GHz Earth-to-space and 10.70-11.70 GHz space-to-Earth with 50 dBW e.i.r.p and 2W transmit power maximum.
- **“Commons”** which is also often called **“open spectrum”** referred to a model where spectrum is being made available to **any application or use** without a licence. Restrictions are imposed on equipment, such as power levels or other technical limitations, so as to avoid harmful interference but no application is prescribed. A “commons” band example would be that of the 2.4 GHz band. “Commons” bands may also be defined for underlay applications such as UWB-based communications applications.

Responses to the RA8 questionnaire indicated however that this distinction is not clearly understood and some administrations even do not consider it relevant. In fact most CEPT administrations that provided information either responded that they have no commons regime, or found it difficult to distinguish commons from a licence-exempt regime and considered that pure “commons” in the sense defined in the survey i.e. that “any use and any application is allowed in such bands” do not exist.

1.3 Collection of information

A questionnaire was sent to the 46 CEPT administrations in early March 2005 and answers were collected until June 2005.

Responses were received from the following 16 administrations:

Czech Republic, Cyprus, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Lithuania, Poland, Portugal, Netherlands, Slovak Republic, Sweden, Switzerland and the United Kingdom

1.4 Structure of the report

As highlighted above most respondents found the distinction between licence exemption and a “commons” regime confusing or not relevant, which is why the report mainly focuses on the situation with licence exemption. Where specific information has been provided by administrations on e.g. the 2.4 GHz band, specific references have been included in relevant sections of the report.

The report is structured as follows:

- Section 1 is an introduction
- Section 2 addresses the current status of licence exemption, including case studies for exemption of specific applications
- Section 3 deals with the potential consequences of licence exemption on revenues, budget and on the tasks to be carried out by administrations
- Section 4 assesses the benefits of licence exemption
- Section 5 presents views of administrations on the development of “commons”
- Section 6 sums up conclusions

2 STATUS OF LICENCE EXEMPTION

2.1 Licence exemption: general trends

Out of **sixteen** responding administrations, **twelve** (*Czech Republic, Cyprus, Denmark, Estonia, Greece, Hungary, Lithuania, The Netherlands, Poland, Portugal, Slovak Republic and UK*) agreed with the statement that “in harmonised bands as well as for certain radio applications where equipment seems to be increasingly sophisticated, the risk for interference has reduced considerably which makes licences less and less justified.” Some of the administrations did not agree with the statement based on the argument that licence-exemption is not necessarily dependent on sophisticated technology (e.g. exemption for toys, remote controls). Exemption decisions are often primarily related to the harmonisation of frequency bands.

A number of administrations reported having good experience with general licences or licence-exempt regimes.

In particular one administration which reported not having received any interference complaints after licence exemption had been introduced for certain applications in certain bands considered licence exemption successful. For another respondent the precise definition of rules and the choice of suitable bands seemed to be a successful approach which should be followed in the future. Another respondent mentioned that the development and market penetration of new techniques were important elements for deciding on licence exemption. It was also reported that frequency bands, types of service and technical criteria to ensure compatibility must be harmonised,

Several respondents underlined that licences are justified on grounds of potential harmful interference, so that when the risk of interference is low or the efficient use of spectrum is not at risk licence exemption is normally considered. However one administration indicated that licensing is not used for interference management purposes only and even for applications where the risk of interference is considerably reduced, there may be a requirement for licensing to meet other objectives.

In the context of market-oriented approaches one administration indicated that developments in equipment have allowed and will continue to allow for greater flexibility in the delivery of services and that spectrum liberalisation will have a positive economic benefit and allow for the most appropriate use of each and every liberalised band of radio frequencies.

With regard to the role new technologies may play in the development of licence exemption, one administration underlined that there is no direct relationship between the two as the only candidate technology to call for exemption would be generic cognitive radio which is not yet available. DFS for RLAN at 5 GHz was however mentioned by another administration as potentially sophisticated enough to justify exemption.

Furthermore one administration underlined that the advantages of technical evolution are normally counterbalanced by cheaper equipment and growth of applications, which may result in congestion.

In short, it seems that administrations acknowledge successful developments with licence exemption, but that it will continue to be done on a band-by-band or application-by application basis as technology alone cannot justify exemption. Exemption is mainly justified by the absence of potential harmful interference.

2.2 Influence of the EU package on licence exemption policy and future changes

A number of administrations see a relationship between the implementation of the EU package and licence exemption policy as national legislation which transposes the EU package normally contains provisions for licence exemption whenever feasible. In particular, some of the new EU member countries reported an increasing use of licence exemption after the EU package had been implemented. However, five of the responding administrations responded that licence exemption policy was adopted regardless of the EU package, which came into force well after national provisions for exemption had been put in place. This indicates that licence exemption is not always or not only a direct consequence of EU policy.

Further changes with exemption in relation to the EU package do not seem to be expected, which indicates that general licence and licence exemption provisions have generally been in place for some time, at national level, a few years after the entry into force of the EU directives.

Further to be noted, CEPT/ECC/Decisions and ERC Report 25 on the ECA have also played a role in shaping CEPT administrations' licence exemption policy. In particular harmonisation of frequency use was mentioned as a pre-requisite for licence exemption, especially in border areas, for which the ECC work is the most crucial.

2.3 Licence exemption for selected applications

Through the investigations, an attempt was made to encompass all possible applications where licence exemption may already apply or may apply significantly in the future. The following sub-sections therefore deal with exemption of Amateur, Maritime, Satellite, SAP/SAB, Fixed Services and Fixed Wireless Access.

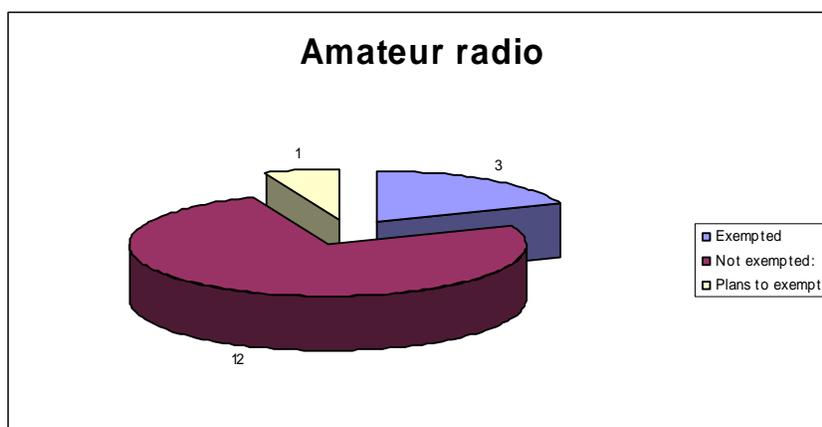
2.3.1 Amateur radio applications

Preliminary remarks

For the use of amateur bands, it should be noted that generally amateur radio users need to take an examination and obtain a certificate which is valid for life. In addition to this certificate, amateur radio users also need to obtain a radio licence authorising them to operate an amateur radio station. Such licence which contains details of the licensee and the licensee's call sign in the country where the licence is granted is valid for a certain duration. In a number of countries the certificate and licence are granted in a single document.

CEPT Recommendation T/R 61-01 provides for the exemption from licensing for visitors from a country that is part of the arrangements to another country that is also part of the arrangements and for stays of up to 3 months. Recommendation T/R 61-02 provides for the recognition of amateur radio certificates through the CEPT harmonised amateur radio examination certificate (HAREC).

Overview



Out of **sixteen** respondents **three** administrations have exempted amateur radio from licensing. **Denmark** did so gradually since 1974 and **Sweden** introduced licence exemption in 2004. **Hungary** also exempts amateur radio use from licensing.

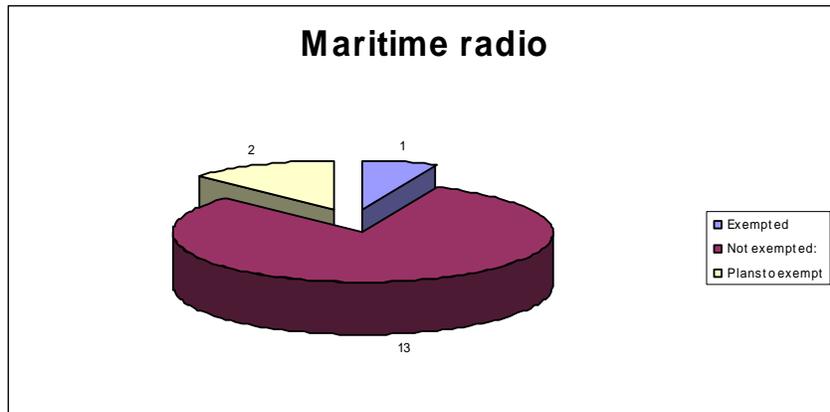
The **Netherlands** plan to exempt amateur radio from 2007.

The **UK** indicated having plans to consider simpler on-line lifetime licences and a trial was underway at the time of the survey, which may result in exemption of Citizens Band Radio.

The introduction of licence exemption in amateur bands does not preclude the need to obtain a radio amateur examination certificate.

2.3.2 Maritime radio applications

Overview



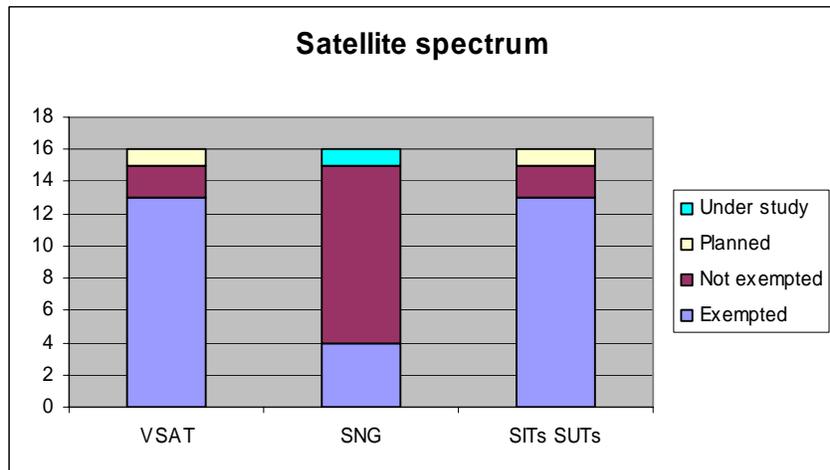
Denmark is the only administration that introduced licence exemption in the maritime area gradually since 1997. Although the frequency use on board ships is licence exempted, **Denmark** still issue Certificates (Ship Station Licences) containing call signs, MMSI-numbers etc. **Sweden** is planning to exempt VHF use for private boats in 2006.

The **Netherlands** also have plans to exempt in the near future.

All other administrations license the use of maritime radio spectrum.

In the **UK** as for amateur bands there are plans to consider simpler on-line lifetime licences for ships and small vessels although it should be noted that Maritime coastal stations, nav aids and radar will continue to require licences.

2.3.3 Satellite applications



Among all considered applications as well as within satellite radio applications, **VSATs**, **SITs** and **SUTs**¹ are exempted by the highest number of administrations. Exemption was implemented from 2000 up until very recently, sometimes in certain frequency bands only and/or based on CEPT Decisions². One administration, **Poland**, is planning to introduce licence exemption for VSATs, SITs and SUTs in 2005.

The **UK** considers exemption not to be feasible for any satellite systems due to need for radio site clearance i.e. EMC compatibility.

As opposed to the extent of exemption for VSATs, SITs and SUTS, SNG has only been exempted from licensing in three administrations, in 2003 or 2004. **Estonia** is studying the possible exemption of SNG.

Further satellite applications exempted in some administrations include AMSS, MSS, LMSS and ROES. One administrations (UK) is planning to exempt HDFSS, in line with CEPT, and possibly ESVs and other mobile earth stations.

2.3.4 SAP/SAB (ENG/OB)

Preliminary remarks

SAP refers to Services Ancillary to Programme making (SAP) which support the activities carried out in the making of “programmes”, such as film making, advertisements, corporate videos, concerts, theatre and similar activities not initially meant for broadcasting to general public.

SAB means Services Ancillary to Broadcasting (SAB) which support the activities of broadcast service companies carried out in the production of their programme material.

ENG - Electronic News Gathering (ENG) - is the collection of video and/or sound material without the use of film or tape recorder, using small, often hand-held, electronic cameras and/or microphones with radio links to the news room and/or to the portable tape or other recorders.

OB - Outside broadcasting (OB) - is the temporary provision of programme making facilities at the location of on-going news, sport or other events, lasting from a few hours to several weeks. Outside Broadcasts are generally planned in advance, but it is often necessary to accommodate short notice changes of venue or unforeseen requirements. Video and/or sound reporting radio links (channels) might be required for mobile links, portable links and cordless cameras or microphones at the OB location. Additionally, video and/or sound reporting radio links may be required as part of a temporary point to point connection between the OB vehicle and the studio.

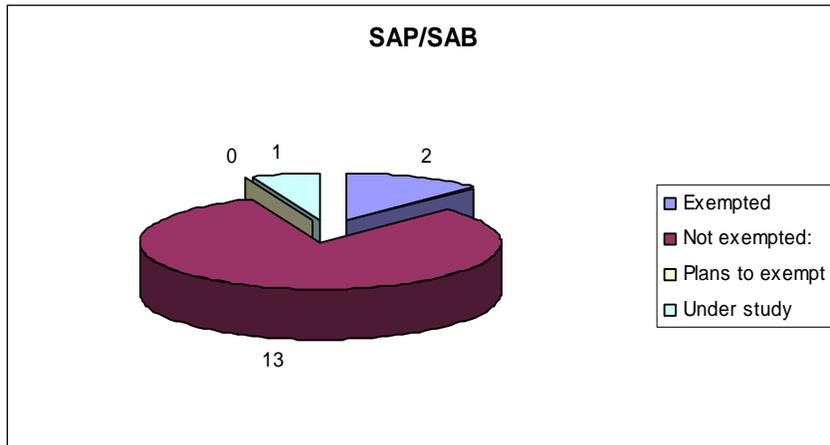
Further information can be found in ECC Report 2 on “SAP/SAB (INCL. ENG/OB) spectrum use and future requirements” (see www.ero.dk).

¹ Definitions –VSATs: Very Small Aperture Terminals; SITs: Satellite Interactive Terminals; SUTs: Satellite User Terminals

² At the point of writing, Decisions ERC/DEC(00)03, (04) and (05) on the exemption of SITs, SUTs and VSATs had been implemented in respectively 23,24 and 22 CEPT administrations. The latest implementation status is available on the ERO website:

<http://www.ero.dk/documentation/docs/doccategory.asp?catid=1&catname=ECC/ERC/ECTRA%20Decisions>

Overview

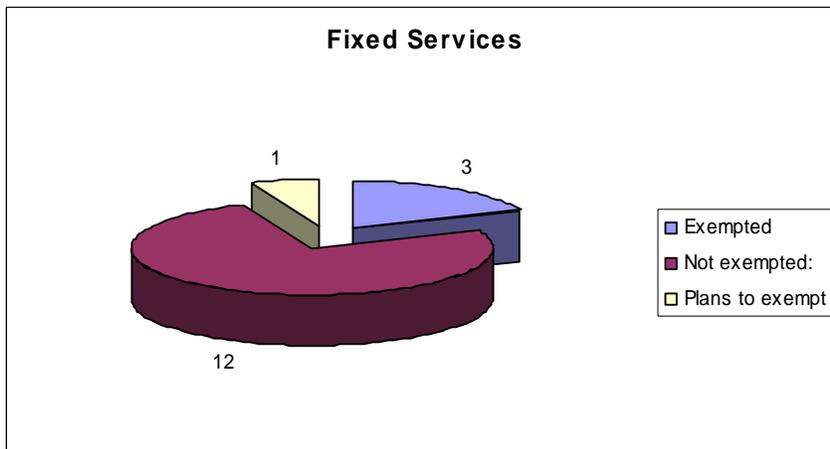


Two administrations (**Hungary** and the **Slovak Republic**) indicated that they exempt the use of equipment for SAP/SAB under certain conditions or within certain bands. No other administrations have indicated plans to exempt SAP/SAB, although **Estonia** is studying the matter.

It should be noted however that what is exempted in the case of SAP/SAB is generally terminal equipment such as radio microphones, in-ear monitors or cameras for instance. High power video or audio links which enable connection from an event location to central studios for example are generally covered by a licence.

2.3.5 Fixed Services (FS)

Overview

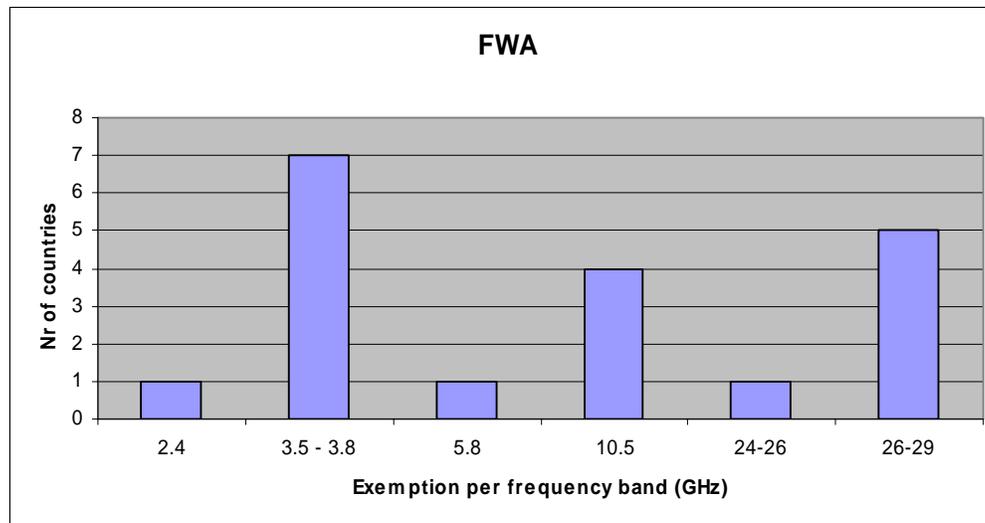


Sweden has exempted certain services in the FS bands since 2002. **Denmark** introduced exemption in a number of areas in 2002, which includes FS at 58 GHz. The **UK** has also exempted FS use at 58 GHz. In **Switzerland** licences are required but no coordination is carried out (in line with **ERC/REC 12-09** on radio frequency channel arrangement for fixed service systems operating in the band 57.0- 59.0 GHz which do not require frequency planning).

Only one administration, **Poland**, as for other areas foresees exemption in 2005

2.3.6 Fixed Wireless Access (FWA)

Overview



The above shows the extent of licence exemption in various frequency bands for FWA. The sub-bands where exemption applies vary from country to country. The highest level of exemption according to the responses received applies to the 3.5-3.8 GHz band, which may be related to the fact that the 3.8 GHz band has been used for FWA for a long time. Furthermore, although the 2.4 GHz band was only mentioned as exempted by one administration, it is most probably exempted from licensing in most CEPT administrations.

Similarly to SAB/SAP however, licence exemption in the case of FWA refers to what is called “Customer Premises Equipment” (CPE), i.e. terminal equipment, which operates under the control of a FWA network, the latter being subject to a licence.

There are currently considerations in CEPT to possibly recommend completely licence-exempt FWA deployment in a “new” 5.8 GHz band, but this decision will be subject to successful resolution of some remaining sharing issues.

Estonia indicated having plans to exempt further terminal equipment at 410-467 MHz.

2.4 Conclusions

CEPT administrations are generally positive about their experience with licence exemption and consider that when no harmful interference is likely to be caused by unlicensed operations, licence exemption should be considered. This is the most important criteria for deciding on exemption while technology alone does not call for licence exemption.

If one looks at applications that have been exempted so far, the extent of exemption is however rather limited, except in cases where specific CEPT Decisions have been adopted such as for satellite radio applications (see VSATs, SITs and SUTs exemption Decisions of 2000).

In spite of the positive results with exemption, only few administrations have intentions to extend exemption to applications such as amateur or maritime radio. This indicates that administrations are more likely to embark on exemption when a harmonised CEPT or EU approach is taken.

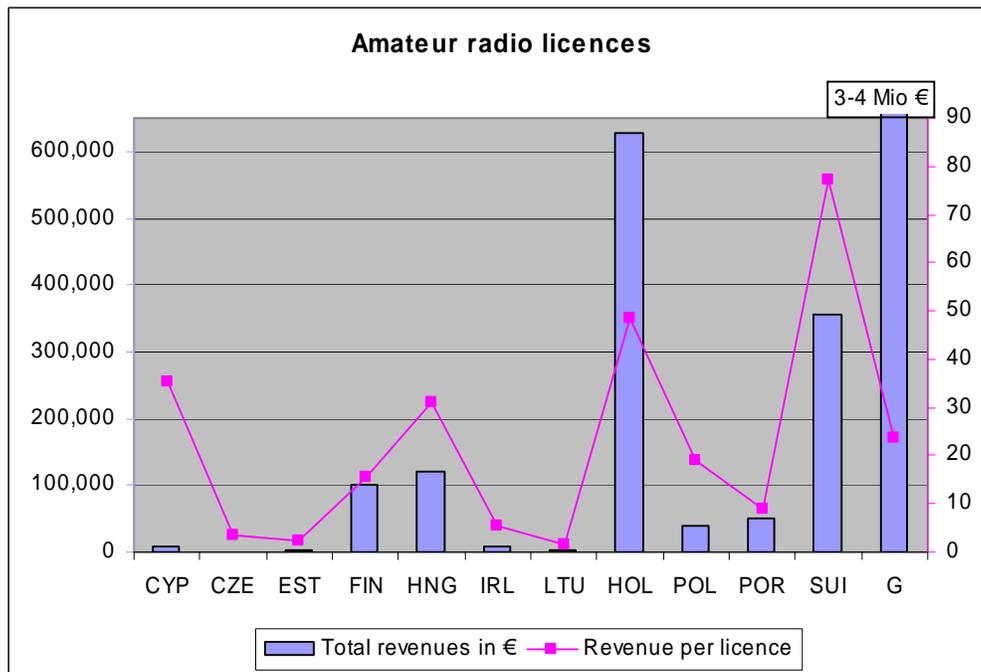
3 POTENTIAL CONSEQUENCES OF LICENCE EXEMPTION

As reflected in ECC Report 053, some administrations had raised the question of how to deal with the lack of revenues when licence exemption was introduced and some licensing activities disappear. This section is an attempt to assess the potential financial impact of licence exemption for the selected applications.

3.1 Revenues

3.1.1 Amateur radio licences

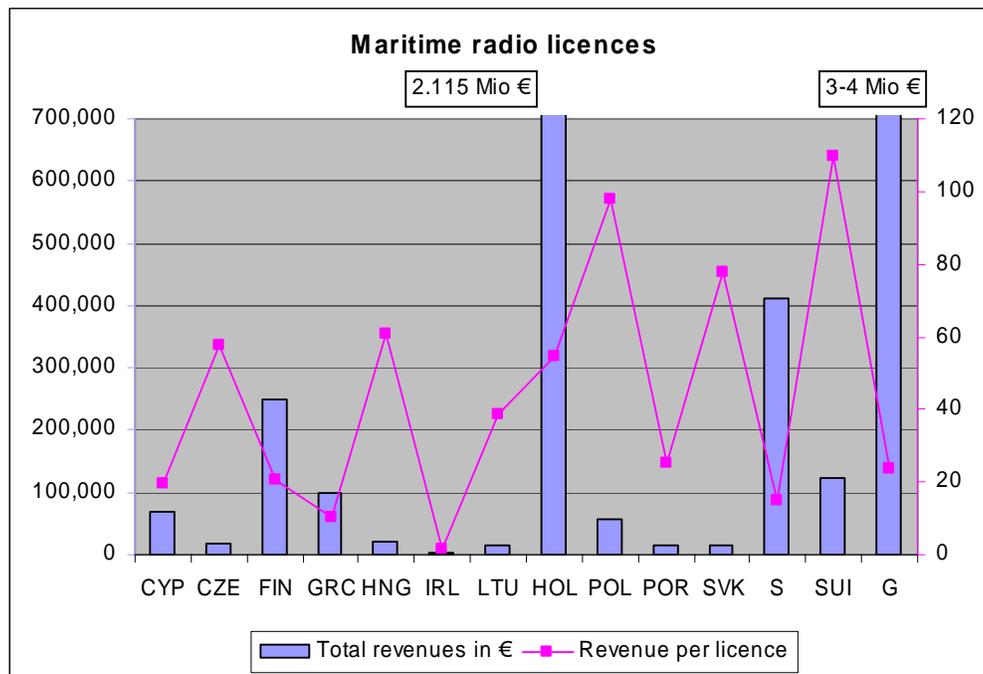
The charts below show respectively the total revenues from amateur radio licences collected by the responding administrations, and the revenues per licence in each administration.



Revenues from amateur radio licences vary greatly and are highest in **UK, Netherlands** and to a lesser extent in **Switzerland**. However when taking account of the number of licences in each administration, the highest revenues per licence is reached in **Switzerland** followed by the **Netherlands** while the **UK** revenue per licence is much lower.

The differences in revenues and revenues per licence are further addressed in section 3.1.7.

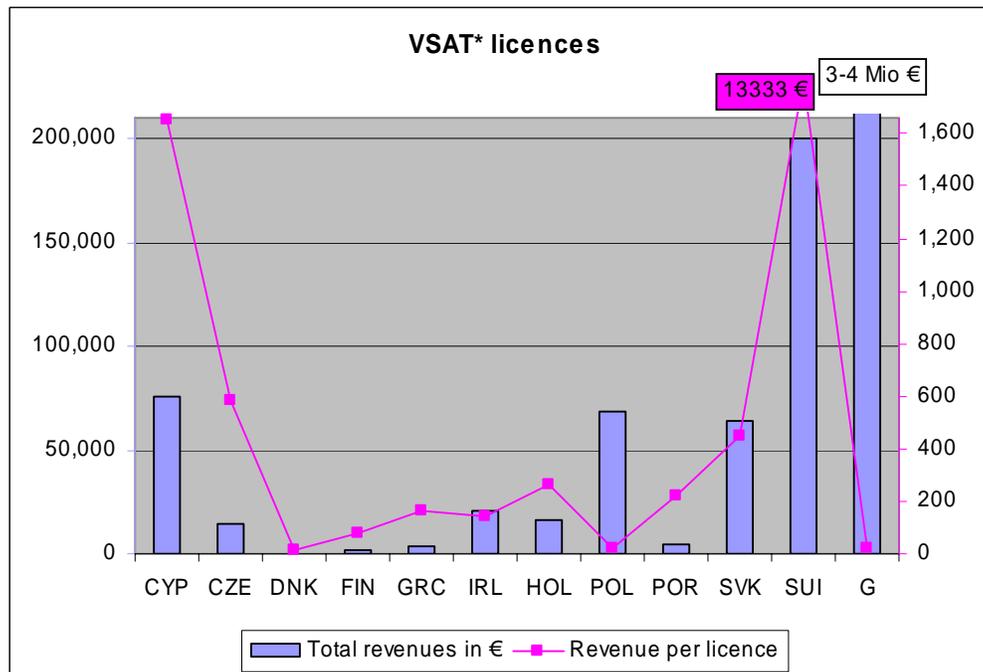
3.1.2 Maritime radio licences



Revenues from maritime radio licences are also highest in **UK, Netherlands** and to a lesser extent in **Sweden**. However when taking account of the number of licences in each administration, the highest revenues per licence are reached in **Switzerland** followed by **Poland** and the **Slovak Republic**.

In most of countries, the total maritime revenues are significantly higher than total amateur revenues.

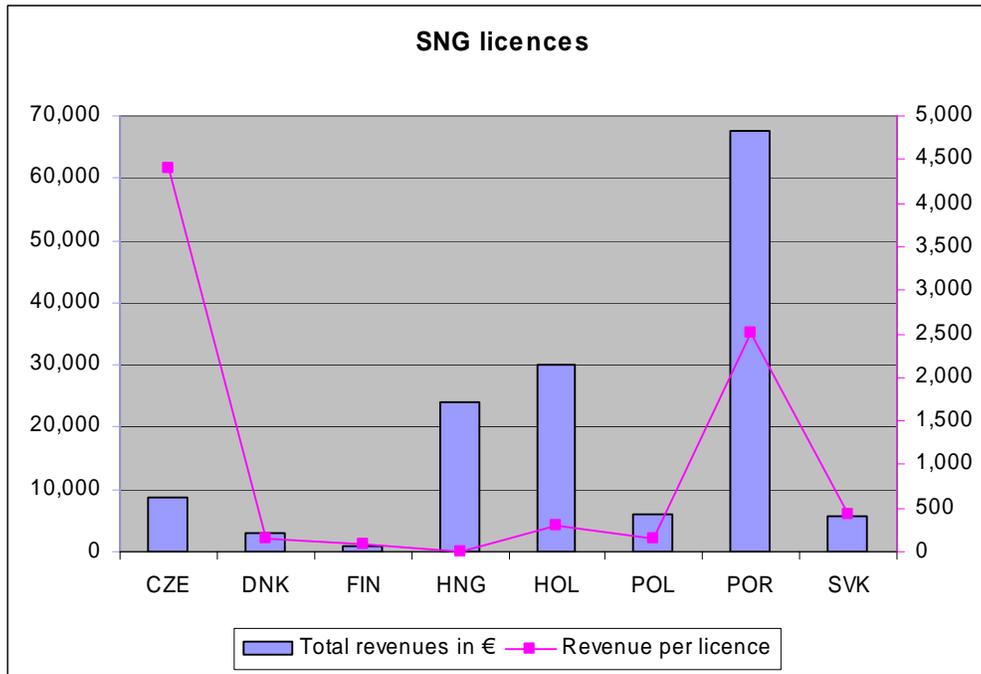
3.1.3 Satellite licences



* Note: For Cyprus and Ireland the figures include all satellite licences.

First of all it should be noted that although a majority of administrations indicated having exempted VSATs, SITs and SUTs as presented in section 2.3.3, these concern uses under certain conditions for certain frequency bands. This is why an administration may exempt some VSATs and licence other VSATs.

Revenues from VSAT radio licences are highest in **UK**, followed by **Switzerland**. When taking account of the number of licences in each administration, the highest revenues per licence are reached in **Switzerland** and **Cyprus**.



Revenues from SNG licences are highest in **Portugal** followed by the **Netherlands** and **Hungary**. When taking account of the number of licences in each administration the highest revenues per licence is reached in the **Czech Republic** followed by **Portugal**.

3.1.4 SAP/SAB licences

Limited information could be extracted on revenues derived from SAP/SAB licences. Furthermore revenues may originate from licences for terminal equipment as well as from licence for studio links (e.g. video links) which makes it difficult to draw conclusions on the impact of exemption for terminal equipment.

3.1.5 Fixed Services licences

Revenues from licences for Fixed Services exceed by far revenues for other applications, ranging from a few hundred thousands to million of Euros. The high number of licences existing in FS bands and the variety of bands or parts of bands concerned make it difficult to assess the impact of licence exemption on revenues as one cannot handle FS as one homogeneous application. Furthermore as the majority of FS use is for “professional” purposes such as network infrastructure, licence exemption is not considered or demanded in most of the FS bands. However if, in the future, more FS were licence exempt, the consequences for administrations could be significant because of the large revenues involved.

3.1.6 Fixed Wireless Access licences

Typically, revenues from FWA licensing activities originate from network licences (i.e. for licensed frequency blocks or per base station). Distinctions may be made between regional and national licences. The number of networks licensed varies from one (e.g. Netherlands) to 452 (e.g. Czech Republic) and revenues collected by the administrations that participated in the survey vary from 37000 to 5 Mio Euro. As exemption is likely to apply to terminal equipment only in CEPT countries, the impact is negligible compared with network licence revenues. It is therefore deemed unsuitable to study the impact of exemption on FWA revenues when exemption is not likely to

apply to networks. This may change with the proposed opening of the 5.8 GHz band for completely licence-exempt FWA networks. However the final decision on this possibility has not yet been taken.

3.1.7 Conclusions

Out of the six applications investigated, Amateur, Maritime and Satellite are the most meaningful for the analysis of the financial impact of exemption on the revenues of the administration. This subsection as well as sub-section 3.2 will therefore focus on **Amateur, Maritime and Satellite only**. Further information on revenues from the remaining applications is in annex 1.

The charts for those three applications show that the revenues derived from licences for the same application vary greatly from country to country, in some cases from a few hundred euros to several million euros. This could simply reflect the fact that when few licences are being granted low revenues are collected and when large volumes of licence are administered higher revenues are collected. However when considering revenues in comparison to the amount of licences issued, important differences appear between administrations.

The differences in revenues or revenues per licence could be explained by the different cost structure of the administration (e.g. efficiency, quality of services etc.), subsidising of some areas, different policies etc.

With the introduction of licence exemption for amateur, maritime or satellite services no more administrative charges would be collected unless some registration system would be set-up which would require financing. In connection with the EU directives, administrative charges are intended to cover the cost of administering the licensing regime and should not exceed those costs.

In administrations with high revenues from amateur, maritime and satellite licences, exemption and the related removal of administrative charges would result in financial and human resources problems.

Depending on the national situation for a specific type of application, and in particular the way fees and charges may be calculated, the decision to exempt from licensing can therefore have a different impact on the financing situation of the administration:

- In particular for administrations which are directly funded by licence holders, exclusively through administrative charges³ (i.e. not financed by the State budget or spectrum fees⁴), difficulties may arise at least during a transition phase.
- Administrations funded by the State budget will less directly feel the lack of revenues, even though the State will receive lower revenues.
- In administrations where spectrum fees apply, the lack of revenue can be covered by fees collected overall for the efficient use of spectrum, which leaves more flexibility to the administration.

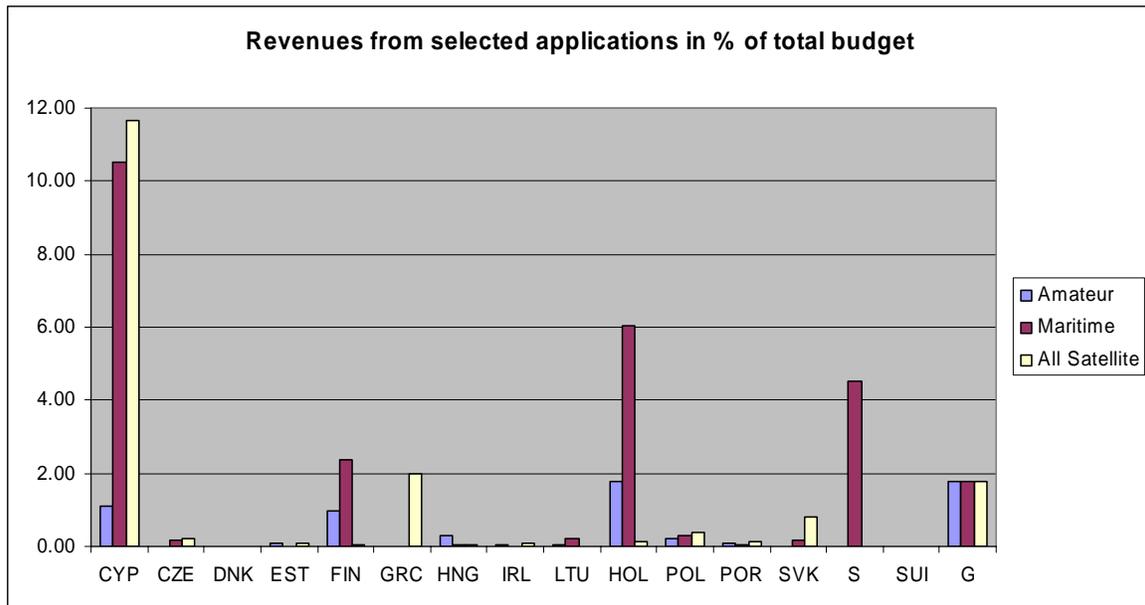
However considering revenues and revenues per licence alone does not give a complete picture, which is why the next section considers the revenues per application in comparison to the total budget of the administration.

³ *Administrative charges* are understood in the meaning of the Authorisation Directive i.e. administrative charges should only cover administrative costs incurred in relation to the authorisation regime, in an objective, transparent and proportionate manner.

⁴ *Spectrum fees* are to be understood in the meaning of the Authorisation Directive, i.e. spectrum fees may be applied in addition to administrative charges, to ensure the optimal use of spectrum.

3.2 Financial significance of selected applications

When measuring the financial impact of amateur, maritime and satellite licences (VSAT and SNG) in comparison to the total budget of the administration or to its total revenues, the results look as follows:



3.2.1 Amateur radio licences

For 13 of the respondents to the questionnaire revenues from amateur radio licences do not exceed 1.8% of the total revenues or budget of the administration. It reaches 1.8% in the Netherlands and in the United Kingdom, whereby figures for the latter are rough approximations.

As to the remaining 11 administrations, revenues from amateur radio licences are below 1% of of the total revenues or budget.

This seems to indicate that licence exemption in the area of amateur would not have a significant impact on the budget of a majority of administrations that responded to the questionnaire.

3.2.2 Maritime licences

It should be noted that in **Cyprus** although the maritime licences represent 10.52 % of the budget of the Department of Electronic Communications in value, as shown in the above chart, maritime licence fees are collected by the Department of Merchant Shipping and are not part of the budget of the Department of Electronic Communications. Licence exemption in the maritime area would therefore have no financial impact on the Cyprus communications administrations, while it may have an impact on the Department of Merchant Shipping.

In the **Netherlands** and in **Sweden**, the maritime licence revenues make up 6% and 4.5% respectively of the total budget or revenues of the administrations. These two administrations are however those that envisage the licence exemption of maritime applications in the near future (in **Sweden** exemption is envisaged in relation to leisure boats only i.e. end-users as opposed to other maritime users who get revenues from spectrum).

For the remaining administrations the ratio is well below 2% or just above 2% (Finland).

The above also seems to indicate that licence exemption in the maritime area would have a moderate budgetary impact in Netherlands and Sweden, and to a lesser extent also in Finland. In further administrations, the impact would be less significant.

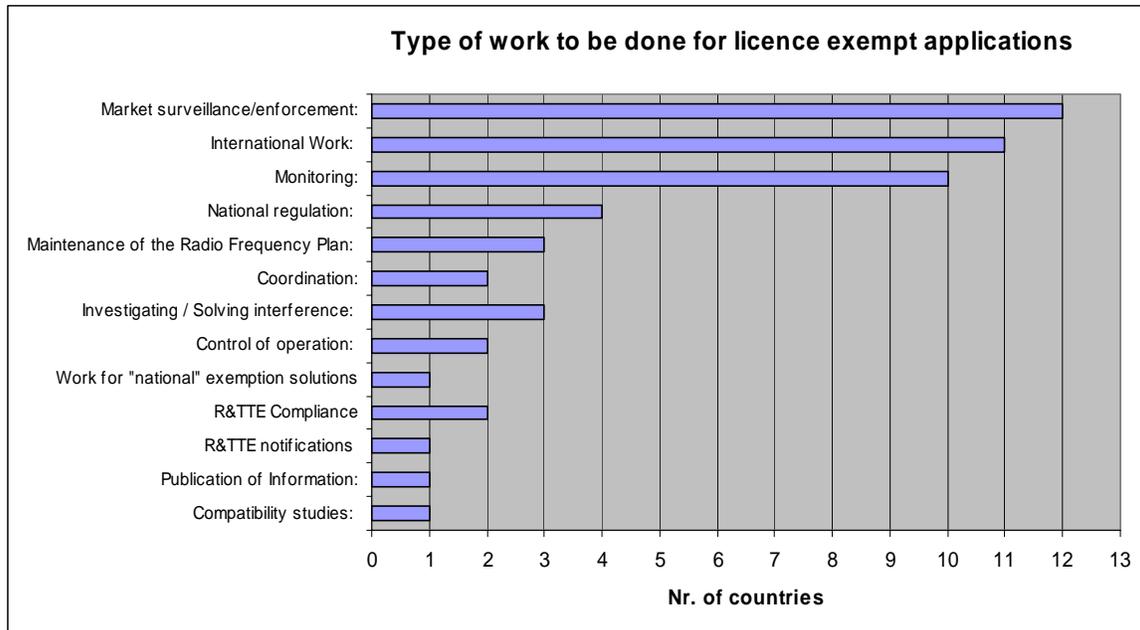
3.2.3 Satellite licences

Apart from **Cyprus** for which satellite licence revenue make 11.65 % of the total revenues/budget, it seems that satellite licences revenues also make up less than 2% and in a majority of administrations that responded to the questionnaire even less than 1% of the total revenues or total budget of the administrations.

The monetary impact of licence exemption in the satellite area may be limited.

3.3 Work for exempted applications or “commons” bands

3.3.1 Overview



Market surveillance/enforcement, monitoring and international work are the type of activities that a majority of respondents (ten to twelve out of sixteen) consider necessary for licence exempt uses.

In particular some of the reasons mentioned for maintaining or, for some of the respondents, increasing monitoring and enforcement activities include:

- the need to protect users in adjacent bands which exists whether or not a specific band is licence exempt or not
- the need to verify that the terms of the licence-exempt spectrum are complied with by users, which could be control of power levels or other technical requirements.

Enforcement is meant therefore as an overall activity and not as the result of handling individual complaints which was mentioned only by two of the administrations considered.

As to international work, such as participation in CEPT or EU fora, it is also deemed necessary regardless of the fact that more or less bands are licence-exempt. This is explained by the fact that there will always be a need for making provisions for new licence-exempt applications or frequency bands, or to assess new technologies and applications in the context of convergence for instance. The volume and cost of international work is therefore not likely to diminish on grounds of increased licence exemption.

Some respondents considered however that there are not many extra-tasks to be carried out currently for exempted applications, once the licence exemption framework for a particular application or frequency band has been defined. But the mere growth of utilisations may imply a need for extra monitoring activities and possibly international work. This would be a consequence of the proliferation of licence exempt applications rather than the implementation of licence exemption in itself.

One administration reported that minimal effort and low priority is put on solving interference in the case of licence-exempted use while international work takes place before implementation of the licence use, which indicates that minimum work is carried out after exemption has taken place.

As to further tasks mentioned by one or the other administration, they range from national policy work to compliance with the R&TTE directive, publication of information and carrying out of compatibilities studies.

For the 2.4 GHz band given as an example of “commons” regime, with regard to the type of work to be carried out, administrations provided identical answers as for activities relating to licence exempt uses. In one administration however the 2.4 GHz is subject to registration which means that additional administrative work applies which would not in a licence-exempt regime. In a further two administrations, R&TTE notification work is also expected for the 2.4 GHz. Last but not least, one administration foresees a light licensing regime in that band.

In conclusion, there is a widespread view that enforcement, monitoring and international work still need to be carried out no matter the extent of licence exemption in the administration. Some even foresee that increased monitoring and enforcement activities will need to take place because of licence exemption. However when administrations deliberately choose to give low priority to licence-exempt uses in the area of enforcement and interference complaint handling, no significant work seems to be necessary. It is therefore up to the administration to determine the level of its activities - enforcement, complaint handling or otherwise - for licence-exempt use. Last but not least, if the use of a band has a high economic impact on society, there may be stronger reasons for the administration to carry out enforcement and monitoring in that band.

3.3.2 *Significance of tasks carried out*

General findings

With regard to the impact of the work for licence-exempt applications as opposed to work for a licensing regime the following views emerge.

For **a third** of the responding administrations the amount of work to be carried out for licence-exempt applications is negligible although one of the administrations foresees a potential increase of certain types of activities with the proliferation of exempted applications and the growth in utilisations. Another administration pointed that only market surveillance duties increase, and the focus of market surveillance shifts from users to suppliers or sellers.

For another **third** of respondents, the amount of work for exempted applications remains significant. In particular the experience of one of the respondents shows a permanent increase of work on market surveillance and harmful interference investigations, as the amount of exempted applications increases. Another respondent however reported that there are many interference complaints with the 2.4 GHz band and WLANs while VSAT exemption did not lead to interference problems. This indicates that the impact of licence exemption on interference/enforcement may depend on the band and application considered.

For the **remaining third** of respondents some work will diminish but that decrease will be offset by other work. For instance one respondent indicated that the work to be done is still significant because monitoring, enforcement and international coordination work are necessary and coordination is especially complicated when dealing with neighbouring countries which did not implemented a licence-exempt regime. Another respondent foresees an increase in work in early stages of licence exemption implementation and in certain cases only. One administration estimates that the same amount of work is needed broadly as for licensed use.

Respondents indicated that with licence exemption the following tasks disappear:

- Collection of fees
- Update of registries
- Burden on administration and users of equipment (due to the adoption of harmonised criteria for exemption from individual licensing for the use of some categories of radio equipment)
- Licensing activities / administrative operations (e.g. issuing and modification of licences) / individual handling of applications.

Tasks that are expected to increase in volume include:

- Market surveillance⁵ and investigation of harmful interference as a consequence of increased risk of interference.
- Activities in enforcement and monitoring.

Tasks that will remain unchanged in the view of some respondents to the survey are:

- International co-ordination activities
- Enforcement: requirement to ensure spectrum remains clean and that non-compliant equipment is removed from the market
- R&TTE Directive-related work.

Example of 2.4 GHz band

As to the workload for the 2.4 GHz band, answers ranged from “not significant” to “impossible to evaluate”. For administrations that gave an estimate of the workload, figures are shown below:

	EST	HNG	LTU	POL	S	SUI	G
Monthly workload in man/days	12	≥ 60	5	10	≤1	≥ 100	20

For **Hungary** estimations are based on 1 staff member working on regulation in the band, 1 staff member working on notifications and various staff members involved in market surveillance, investigation of interference and enforcement.

For **Switzerland** estimations refer to approximately 5 people, 1 for international work, 3 for monitoring and 1 for radio basics.

Other administrations foresee a less significant need for human resources.

3.3.3 Cost recovery for work on licence exempt applications or “commons” bands

The costs of activities relating to licence exempt applications are recovered through the following instruments:

- The state budget (5 administrations)
- Direct funding by the administration budget (2 administrations)
- A mix of state budget and fees (1 administration)
- Fees from other licences services (6 administrations). This is justified by the fact that licensees benefit from e.g. the monitoring or enforcement activities carried out for the exempt use
- An RTTE-fee which is imposed in one administration on all operators and licence holders in order to protect them from harmful interference.

An administration suggested that in order to ensure the timely and effective fulfilment of monitoring and enforcement tasks it would be helpful to register users of unlicensed frequencies and the registration fee could be one of the cost-recovery sources.

Similar answers to the above were provided for cost-recovery of work carried out for the 2.4 GHz band and for UWB or underlay type of applications. For the latter, in addition, some administrations indicated that they have not yet planned that type of work in their budget while one administration in this particular case covers the costs via fees passed to users who require protection.

3.3.4 Reorganisation of tasks following licence exemption or introduction of “commons”

No problems with the reorganisation of tasks are foreseen in connection with the expansion of licence-exempt use in **over two thirds** of the responding administrations.

In one of the above administrations where some earlier policy changes had an impact on the tasks of the administration staff had to move to new tasks. It is suggested that the same may happen in the context of licence exemption.

⁵ However it should be noted that one administration reported that market surveillance has proven to be a minor task as regards the larger part of equipment in licence-exempted bands, there is however some equipment (very few when compared to market as a whole) that seek its way into the market and causes some disturbances.

Another administration is of the view that licence exemption gives the regulator a possibility to focus on more complex issues that are connected to the rapid technical evolution within the radio sector. However, some initial problems are foreseen with regard to the shift of people within the organisation.

In that context another administration foresees some immediate problems during the transition phase, i.e. when the decline in revenues from licensing is not immediately matched by a move from staff to other tasks. This is a problem in particular where the administration only applies administrative charges which aim at recovering the costs incurred by a licensee, possibly based on a cost allocation model, as there is a direct link between a particular task carried out and the money received from licensees for this task. In cases where funding comes partly or wholly from the state budget or spectrum fees, there is no direct relation between the two elements and in transition phases the lack of revenues can be softened by revenues from other sources or activities, especially when spectrum fees largely exceed the cost of the administration, as is the case in the **UK** for instance.

A particular example is that of **Hungary** which sees the need for investing more and more resources in controlling interference problems. Market surveillance does not seem to be effective as problems cannot be prevented but solved after they appeared. In particular Hungary experienced serious difficulties with investigation of harmful interference above 1 GHz because:

- the sources of interference changes its location, thus the problems are localised and refined with difficulties
- surveillance requires high-cost equipment for measurements.

3.3.5 Impact of commons on the spectrum management organisation

In the future it is likely that "commons" bands will be identified. The views of respondents with regard to the impact of increased commons implementation on the organisation of spectrum activities vary.

Three administrations consider it too premature to answer, one reason being that it is difficult to predict the growth of frequency bands subject to commons.

Another four administrations do not foresee any problems in adapting or any significant impact on the organisation of activities.

One administration foresees a reduction in the amount of work although international work will continue.

Another two administrations foresee the reorganisation of management tasks with more emphasised sharing and planning tasks.

One consequence which some administrations anticipate in case more bands become "commons" is a rise in fees/charges for the users of licensed spectrum.

Another issue is that of frequency refarming of "commons" bands which could result in complicated procedures to clear those bands.

In cases where market mechanisms for spectrum allocations are being favoured, great care will be taken in assessing the economic benefit of a harmonised commons band over that of liberalisation.

4 BENEFITS OF LICENCE EXEMPTION

Most respondents to the survey saw benefits with licence exemption, with the exception of one administration which considered that quality of service of radio applications will decrease and the risk of interference will increase. Another administration underlined that when the use of a certain bands reaches a certain level, interference will occur but traditional means to resolve interference cannot be taken as users are not known. The administration has therefore to inform users of these bands about potential risks.

As to the benefits reported by administrations, they affect both the market or users and the administration. Although these answers were provided on the subject of "licence exemption", RA8 felt that some respondents had the concept of "commons" in mind when answering, rather than licence exemption of clearly defined applications.

Benefits for the market:

- Increased competition by:
 - enabling greater access to technology and new services
 - lowering barrier to entry thus giving opportunity to smaller and medium size providers to also enter the communications market
- Economic benefits in the long term through fostering innovation and competition in infrastructure and service provision
- More harmonisation within CEPT
- Reduced administrative burden on manufacturers and services providers resulting in
 - reduced time to market
 - costs savings
- More effective use of spectrum through market self-regulation
- Cheaper services/equipment for end-users
- Simplicity for users and manufacturers.

Benefits for the administration:

- Saving of scarce resources for planning of services for which individual frequency planning is necessary
- No need for international coordination
- Reduction of administrative work:
 - No individual registration (database maintenance)
 - No need for individual provision for each user
- Less monitoring
- Contribution to a more supple and flexible use of frequencies
- More liberalized spectrum use may have a small reduction of costs of spectrum management – that could in turn lead to lower charges for spectrum users.
- Simplicity for the agency.

Risks:

The risk with increased licence exemption is the growth in increased background radio levels affecting traditional licensed radio services and to services which are less immune (e.g. traditional broadcasting, radio astronomy, aeronautical).

It is interesting to note that only one risk was mentioned by respondents, while a long list of benefits could be drawn out of all the comments made. This stands in contrast with the current extent of licence exemption or with the relatively low number of administrations that intend to exempt further applications in the future, as presented in section 2.

5 VIEWS ON THE DEVELOPMENT OF “COMMONS”

Views on the trend towards introducing more and more commons bands are divided.

Administrations that consider “commons” a positive development provided further comments which may be taken into account by CEPT administrations when considering the issue:

- “Commons” are a positive development from the point of view of spectrum management. However, there will still be work to be done for such bands and a system therefore needs to be devised whereby the users of the bands bear the cost of the administration for managing the “Commons” bands.
- It will make the use of frequencies more supple and flexible.
- There should be more European wide harmonised spectrum for PMR and FS type of “commons” use and consider that enforcement problems that some countries have at 2.4 GHz are a result of the situation that there is not harmonised spectrum for licence-exempt FS use.
- “Commons” bands offer the possibility to use frequencies without barriers, but the danger of interferences grows with the amount of frequency users even with sophisticated technologies.
- An increase in the number of services and lower prices of services for the end users is anticipated.
- It will boost innovation and productivity with positive impact on the communications market and public welfare

- The trend to have more “common” bands is a positive development as less regulation means more liberalization
- Regulatory costs will decrease
- “Commons” lead to more efficient usage of spectrum.

Some other administrations are either cautious or skeptical on the subject, as highlighted by the statements below:

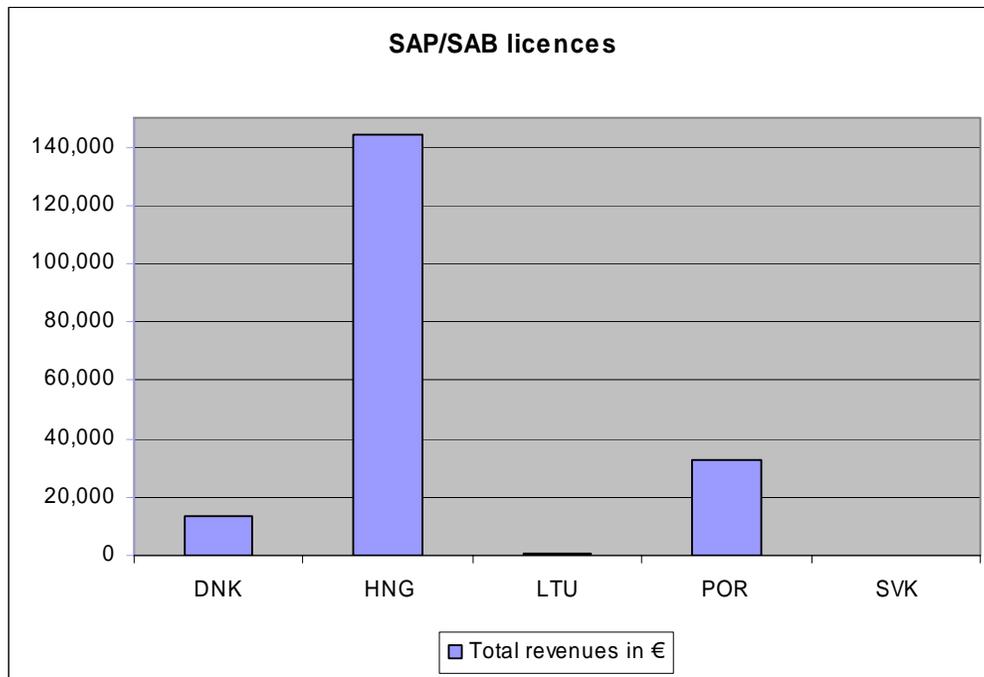
- The number of such bands should be very carefully justified.
- [We] do not fully support the trend towards more liberalised use of radio frequencies because restrictions will be imposed on equipment, such as power levels or other technical limitations, so as to avoid harmful interference and therefore use of such equipment will be limited providing any possible services in terms of quality and coverage. In order to provide “business class” applications ensuring QoS still there will be demand to use protected licensed bands. Some opposition and coordination problems may also be expected with such bands with regard to neighbouring countries.
- The main aim of spectrum management being to allow the operation of radiocommunication systems free from harmful interferences, any spectrum policy that guarantees this principle is worth to be studied. However this trend [i.e. commons] should not be taken for granted at the moment as other issues may have an impact on future developments, namely harmonisation, EU policy and technology developments.
- There are not only advantages with “commons” as cheap or free resources are normally considered “worthless or unlimitedly available” which normally results in an inefficient use.
- A difference between licence exempted bands and commons is the risk for band use saturation with commons, i.e. higher numbers of users because there is no service restriction
- “Commons” may be considered if that is what the market desires of a particular frequency band.

6 CONCLUSIONS

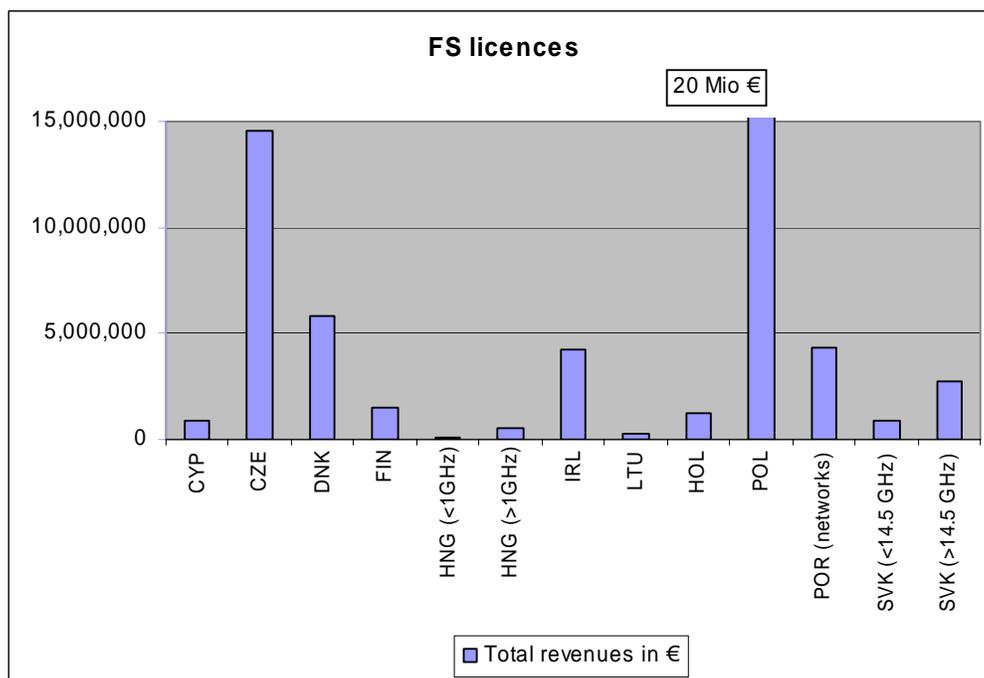
- Administrations acknowledge successful developments with licence exemption, and a long list of benefits can be drawn from administrations’ experience while only one risk has been identified.
- In spite of the positive results with exemption, only few administrations have intentions to extend exemption to applications such as amateur or maritime radio. Administrations are more likely to embark on exemption when a harmonised CEPT approach is taken as has been done in the satellite area.
- Administrations need to exert caution when deciding on licence exemption and under which conditions, as experience shows mixed results with some licence-exempt applications leading to better results than others (e.g. less interference cases, better user behaviour etc.)
- Exemption will continue to be done on a band-by-band or application-by application basis. The main criteria for pursuing licence exemption is the absence of potential harmful interference as technology alone cannot justify exemption.
- A number of administrations foresee an increase in monitoring, enforcement and market surveillance activities. However experience in other administrations shows that such work has actually not increased or has even decreased after exemption has been implemented.
- Administrations also have different views on the level of “service” to be provided for licence-exempted uses. When an administration gives low priority to interference problems in exempted bands, the amount of work carried out for those bands is considered negligible. Other administrations consider the protection of adjacent bands, for instance, the reason for continued work for licence-exempted bands.
- The financial impact of licence exemption is likely to be greater in administrations whose revenues are solely based on administrative charges while administrations financed by fees and/or state budget or a mix of resources have financial means to soften the impact of licence exemption.
- Licence exemption may result in the need to shift people to other tasks in the organization, which is perceived differently in different administrations.
- It can be concluded that “commons” in the sense used in this report exist in the CEPT administrations considered, in spite of the fact that the term “commons” has been interpreted as licence exemption by a number of respondents. Opinions are divided on the benefits of “commons” based on the experience with the 2.4 GHz band which is considered very successful in some administrations while others see significant problems with e.g. congestion.

Annex 1: Revenues from SAP/SAB, FS and FWA applications

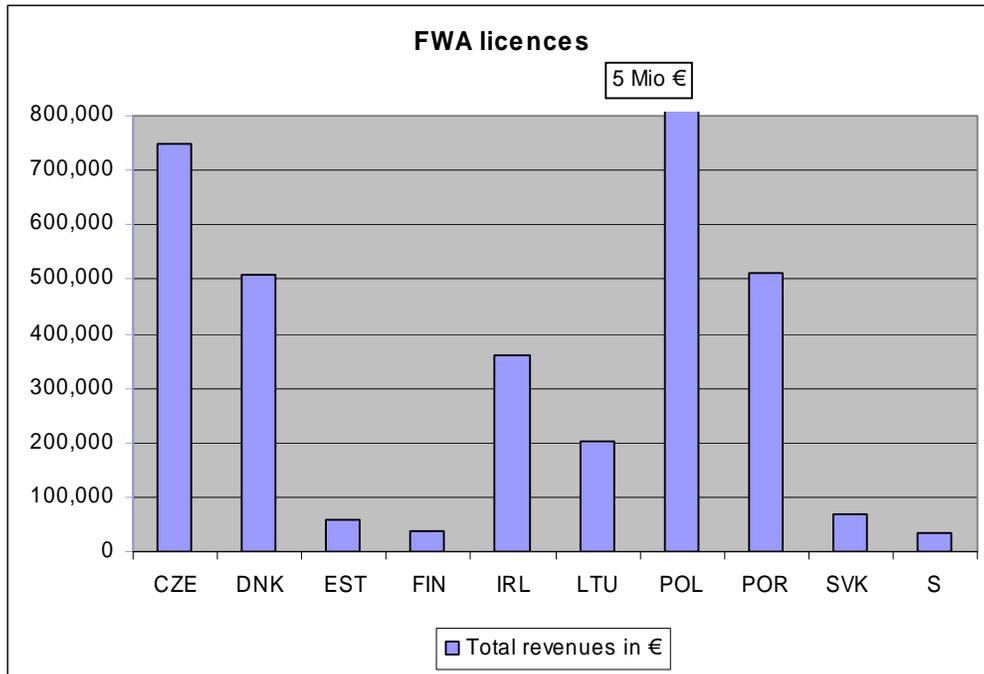
- **Revenues from SAP/SAB applications**



- **Revenues from Fixed Services applications**



- Revenues from Fixed Wireless Access networks



Annex 2: Country Codes for CEPT Countries*Country codes for CEPT countries as agreed 30-31 March 2004*

		ITU
1	Albania	ALB
2	Andorra	AND
3	Austria	AUT
4	Azerbaijan	AZE
5	Belarus	BLR
6	Belgium	BEL
7	Bosnia and Herzegovina	BIH
8	Bulgaria	BUL
9	Croatia	HRV
10	Czech Republic	CZE
11	Cyprus	CYP
12	Denmark	DNK
13	Estonia	EST
14	Finland	FIN
15	France	F
16	Germany	D
17	Greece	GRC
18	Hungary	HNG
19	Iceland	ISL
20	Ireland	IRL
21	Italy	I
22	Latvia	LVA
23	Liechtenstein	LIE
24	Lithuania	LTU
25	Luxembourg	LUX
26	Macedonia (FYROM)	MKD
27	Malta	MLT
28	Moldova	MDA
29	Monaco	MCO
30	Netherlands	HOL
31	Norway	NOR
32	Poland	POL
33	Portugal	POR
34	Romania	ROU
35	Russian Federation	RUS
36	San Marino	SMR
37	Serbia and Montenegro	SCG
38	Slovenia	SVN
39	Slovakia	SVK
40	Spain	E
41	Sweden	S
42	Switzerland	SUI
43	Turkey	TUR
44	Ukraine	UKR
45	United Kingdom	G
46	Vatican City	CVA

