



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

**AUCTIONS AND BEAUTY CONTESTS
IN CEPT ADMINISTRATIONS**

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Auctions and beauty contests in CEPT administrations

1 INTRODUCTION

During recent years auctions and beauty contests have been carried out in a number of CEPT administrations to assign spectrum for different applications or systems, and although a number of reports have been written on e.g. 3G auction results or auction theory, no comprehensive overview of the experience gathered from auctions and beauty contests in European administrations has been made available so far.

This report is therefore an attempt to gather data available within CEPT administrations on the issue of auctions and beauty contests, and to provide an informative overview of the experience acquired, which could benefit other NRAs when planning auctions and beauty contests in the future. There should also be additional value to be gained from such a report for those of the 46 CEPT administrations that are in different stages of liberalisation, in that they may learn from the experience gathered in other countries.

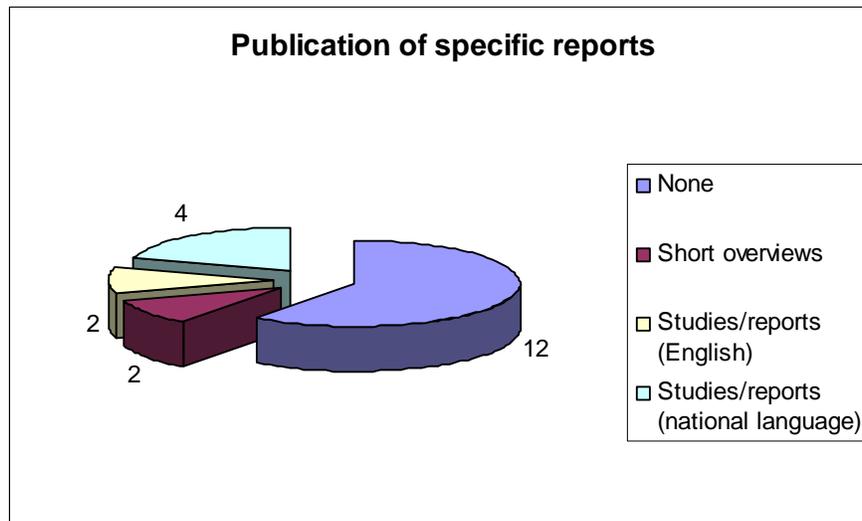
Data was collected by means of a questionnaire which was issued to CEPT administrations in April 2004. Up until July 2004 the following 20 countries responded to the questionnaire:

Austria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Lithuania, the Netherlands, Norway, Poland, Portugal, Sweden, Slovak Republic, Switzerland, Turkey and the United Kingdom.

In a first step a review has been made of the information available on the subject within NRAs and of the type of external help sought by NRAs (**section 2 and 3**) for choosing, defining and/or implementing one or the other selection procedure; a more detailed overview containing links to various contact points and information resources at NRAs is presented in **annexes 3 and 4**. In a second step country-specific information on experience with auctions and beauty contests has been collected, and a number of specific aspects of auctions and beauty contests at national level have been investigated, the results of which are presented in **sections 4 to 8**. Industry views have been gathered in **section 9**. **Section 10** concludes the work.

2 AVAILABLE INFORMATION ON AUCTIONS AND BEAUTY CONTESTS - LINKS TO OFFICIAL REPORTS, STUDIES OR ANALYSES PRODUCED BY THE ADMINISTRATION OR OTHER GOVERNMENT BODIES

General overview:



The above overview shows that in a majority of CEPT administrations (12 out of 20) no official report or study on the topic of auctions and beauty contests has been published. If one adds those administrations that have only published short overviews, two thirds of the respondents have not published any significant analysis.

2.1 no specific studies published

Austria, Cyprus, the Czech Republic, Estonia, Hungary, Ireland, Lithuania, Norway, Poland, Portugal, the Slovak Republic and Switzerland have not published any official report or analysis on the subject.

Hungary commissioned some reports evaluating tenders; however, these documents are not publicly available.

2.2 Short overviews published

Denmark provides a summary in English of the objectives of the selection procedure that have taken place so far, with links to the relevant legislation and timetable.

The **German** administration's website contains information for UMTS, GSM and WLL. The information can be accessed via a general search tool, some of it is available only in German (GSM 1800 auction):

- The UMTS section contains links to the legal basis for the organisation and running of the UMTS auctions, the list of licence holders, information on allotments and a list of principles ("Infrastructure Sharing Principles") to clarify the extent to which and the technical conditions under which shared use of infrastructure is compatible with the UMTS Award Conditions.
- The search results for GSM 1800 auctions lead to various links to information documents on the licence awarded, press releases on the subject and documents about the licences offered and the procedure, which were produced before the auction took place.
- The WLL area provides a short summary of the selection procedure applied and the results in terms of companies selected and coverage areas.

2.3 Analysis published

Finland published a report on the 3G beauty contests in March 1999. It includes details of all the applicants, the selected applicants, the selection procedure and selection criteria used, the conditions for obtaining a licence and the anticipated impact of the award of 3G licence on the telecom market and society as a whole. This document is an analysis of what happened at the time licences were awarded.

The **French** regulator has published comprehensive information on UMTS and FWA in a dedicated area of their website, including a history of the whole assignment procedure with links to legal documents, press releases and analysis documents. Further studies commissioned to consultants or carried out by specific government bodies on e.g. the economic analysis of UMTS have also been published.

The **Netherlands** commissioned a study in 2001 on “Research into methods of frequency management” that was completed by the consultancy Analysys. Two further studies are only referenced in Dutch.

Sweden has written several reports on the subject which are available in Swedish only. One report dealing with the latest thinking on auctions as a method for assigning licenses has been produced in English and has received a positive feedback from the market.

Turkey has published a report which is not available in English.

The **United Kingdom** has published a report on 3G auctions, a summary report on the 28 GHz auction and a document gathering feedback from participants in the 3.4 GHz auction.

- The 3G Report on “The Auction of Radio Spectrum for the Third Generation of Mobile Telephones“, ordered by the House of Commons in 2001, presents an analysis of the objectives pursued via the 3G auction and of the possible reasons why the proceedings led to the outcome we know; it also investigates the design and operation of the auction and presents a conclusion as to the efficiency of the selection procedure. The report also contains some recommendations on the management of radio spectrum and on the use of auctions in the public sector.
- A summary report on the 28 GHz auction provides a brief overview of the auction outcome, the reasons why it ended the way it did, and how the unsold licences could be handled.
- Another report provides a summary of the feedback received on the 3.4 GHz FWA auction, highlighting views expressed on the licence packaging, the preparation of the auction, the auction design, the conduct of the auction and recommendations for future developments.

It should be noted that an extensive study carried out by McKinsey on behalf of the European Commission, DG Information Society on 3G licensing was published 25 June 2002: “Comparative Assessment of the Licensing Regimes for 3G Mobile Communications in the European Union and their Impact on the Mobile Communications Sector”¹. This report, in addition to an analysis of the 3G process and the impact of 3G on the telecom markets, provides recommendations and guidelines for future spectrum assignments in Europe.

2.4 Auctions and beauty contests – still a sensitive issue

Very few administrations have published specific reports or analysis documents on auctions and beauty contests. Websites of administrations seldom contain a specific area on the subject, and often such information can only be found via a search for or review of old press releases for instance. In a few countries some studies have been published, but mainly or only in the national language, which makes it difficult for other administrations to build upon the experience of those NRAs. Further, a number of administrations have only published executive orders, decrees and other official legal documents.

¹ Full report available at:
http://europa.eu.int/information_society/topics/telecoms/radiospec/doc/pdf/mobiles/mckinsey_study/final_report.pdf
For annexes to the report:
http://europa.eu.int/information_society/topics/telecoms/radiospec/doc/pdf/mobiles/mckinsey_study/annex_final_report.pdf

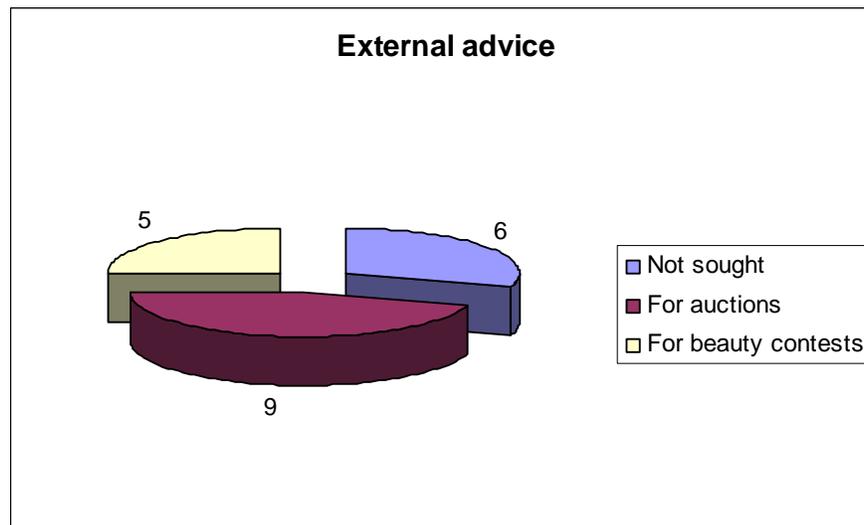
In view of the limited amount of studies made public it is not surprising that NRAs decide to contract consultancies to examine experience gained by others before they make their own decisions whether to hold a beauty contest or run an auction, and possibly how to do it. It could be argued that national information on a specific selection procedure for a type of frequencies in one country at a given point in time is difficult to transpose to any other case; however, the fact that experience to date is being investigated again and again on behalf of administrations, the latest example being Sweden in 2004, shows that there would be a merit in NRAs making their work more public, possibly in English.

One possible explanation for the lack of public information in the area could be the fact that selection procedures, such as for UMTS, have been very sensitive and led to highly political debates. It is understandable that certain reports containing criticism towards a government or an NRA will not be highlighted on their websites. This has been the case in the Netherlands where the UMTS auction gave rise to so much criticism that an enquiry was launched by the Parliament, the result of which – a survey of the whole process – is public, but not easy to find.

Administrations that favour very open approaches, initiating a dialogue with interested parties very early in the design process or even for the choice of a selection procedure, conducting consultations at different stages in the process, are probably less prone to criticism during and after a selection. The publication of studies, reports and analysis of selection procedures is another step towards more transparency which would enhance the exchange of experience between administrations, thus facilitating the task of those in charge of choosing and/or defining selection procedures.

3 SUPPORT FROM EXTERNAL CONSULTANTS

3.1 External advice sought by administrations:



The above chart shows that a third of the respondents prepared their selection procedures internally, while two thirds used external advice for organising their procedures.

Estonia, Finland, France, Lithuania, Norway and the **Slovak Republic** did not hire any external consultants in connection with the organisation and running of auctions and/or beauty contests. In **Norway**, however, the auctions were designed by the Ministry of Transport with the help of auction design/game theory by economics scholars.

The remaining countries did seek the assistance of external consultants as follows:

Austria hired an auction expert for some of the auctions it carried out.

Denmark was advised by a consultancy in connection with the proposed allocation of spectrum for third generation (3G) mobile services by auction.

Cyprus hired consultants who were given the task of producing a complete bidder's package consisting of an auction pre-information package to be used in pre-auction information seminars, the conduct of a mock auction, the conduct of the auction and a report following the completion of the auction. The tender documents are not publicly available.

The **Czech Republic** sought consultants' advice for the specification of beauty contests criteria and their weighing, as well as for the evaluation of beauty contests. For the auction for UMTS spectrum, consultants were hired to define auction methods and organise the auction.

Germany hired a German-based consultancy for auction design and auction organisation.

Hungary commissioned some work to external consultants with regard to market analysis, including experience with frequency licensing procedures and advice on the formulation of tender conditions, the result of which is not publicly available.

Consultants were hired in **Ireland** to advise the administration on the licence competition. They assisted in the drafting of the tender documents and formulated the methods and manner in which the beauty contest was run. The consultants also helped with the ranking of some parts of the applications.

In the **Netherlands** CREED (University of Amsterdam) provided help with auction design for WLL (December 1999), for UMTS (January 2000) and again for WLL (2002 and 2003). The Central Planning Bureau has provided advice on "auctions and pre-auctions: overbidding in spectrum auctions and its possible impact."

Poland has used consultancies in the past, but the information produced is not public.

Portugal commissioned a number of studies in relation to auctions and beauty contests, including a market study carried out before the decision was made to hold a UMTS beauty contest, and a technical study on DVB-T before launching a beauty contest. In addition, technical experts from universities contributed to the technical evaluation of the proposals for the UMTS and DVB-T beauty contests.

Sweden has not assigned licenses by means of auctions before 2005, since the only method allowed by the law (up until July 2003) was beauty contests. The new law from 2003 has given the Swedish regulator the right to use auctions, and Sweden investigated all aspects of using auctions, i.e. for what, where, how and why to use auctions. The first time an auction was tried in Sweden was within the 450MHz-band (replacing the NMT-450) in early 2005.

A US-based consultancy supported OFCOM in **Switzerland** in the design of the auction of four UMTS licences, and in the elaboration of the auction rules. It provided and hosted the auction software.

Turkey is working out an agreement on consultancy services with regard to authorisation of operators in general. This may encompass auctions and beauty contests.

The **United Kingdom** has published advice, delivered by consultants, for the design of 28GHz BFWA auctions and that of the 3G auctions.

3.2 Reasons for hiring external consultancy

Administrations seem to seek external advice more in the case of auctions than in the case of beauty contests. This seems to indicate that organizing and running an auction presents a higher degree of difficulty than preparing and holding a beauty contest. The variety of auction types, or even the variety of means to implement one particular type of auction, combined with the relative novelty of this assignment instrument as opposed to beauty contests, may be the reason for this situation.

Precisely because of the novelty of auctions as an assignment instrument there may also be political reasons for seeking external advice from economists, academics and other auction experts. The fact that experts have been involved provides the NRA with a certain backing and enhanced credibility, which may reduce the risk for legal action from participants in an auction.

It is interesting to note that one single administration, Switzerland, organized its first auction without any external advice, except for the development of the auction software. For the subsequent auction Switzerland hired a consultancy to provide advice on auction design and the corresponding software. Again the reason for this may be the wish to avoid legal challenge by making sure that the best expert knowledge has gone into defining the process.

Furthermore, those administrations who have hired external consultancies for the first auction may hire the same or other consultancies for later auctions. This would seem to indicate that the external knowledge acquired for designing an auction and the experience gathered via running that auction may not be directly applicable to the use of auctions for other parts of the spectrum. Consultancies may be involved both in the design and running of the auction.

Last but not least, for three out of the five administrations that hired consultancies for organizing beauty contests, the consultancies were tasked with providing an analysis of the market and the level of competition for licences, with defining the tender condition and the method for running the contest, as well as for assessing the applications received.

The above shows that the involvement of external experts may be sought for both instruments - although it seems to be more so for auctions - and for different stages of the process, i.e. from the choice of an instrument to the detailed definition of a selection procedure, to the running of the selection procedure and/or the assessment of applications. It would be interesting to find out if the decision for one instrument was influenced by consultancy studies, or if consultants were tasked with defining the details of an instrument that was chosen beforehand by the government, which was not within the scope of the investigation. Only one country, Portugal, indicated having carried out a study before deciding on a beauty contest, both for UMTS and DVB-T spectrum.

4 EXPERIENCE WITH AUCTIONS AND BEAUTY CONTESTS

4.1 Spectrum assignments via selection procedures: 1990-2004

Auctions and beauty contests have been used to different extent since the beginning of the nineties by the CEPT administrations that responded to the survey. The table below shows for each country the type of instrument used for various parts of the spectrum and the year of assignment.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
AUT										GSM	UMTS	GSM	GSM			
												FWA				
												AR				
CYP														GSM		
														UMTS		
CZ							GSM			GSM	FWA	UMTS	FWA			FWA
												UMTS				
												FWA				
DNK								GSM			GSM	UMTS	GSM	AR		FWA
											FWA					
EST																UMTS
FIN	GSM									UMTS		GSM				
													DVB-T			
													T-DAB			
F		GSM			GSM						FWA	UMTS	UMTS			
D	GSM								GSM	WLL	UMTS					
										T-DAB						DVB-T
HNG					GSM					GSM			FWA			UMTS
IRL							GSM			GSM	GSM		UMTS			
LTU																GSM
																AR
														T-DAB	DVB-T	
HOL					GSM				GSM		UMTS			FWA		
														AR		
NOR	GSM								GSM		UMTS	GSM			UMTS	FWA
																AR
																T-DAB
																DVB-T
POL					GSM						UMTS					
											FWA					
POR	GSM	GSM							GSM			UMTS				
SK							GSM					FWA				
S											UMTS	FWA	FWA			
													GSM			DM
SUI									GSM		UMTS				GSM	
											FWA					
TUR																
UK				GSM	GSM						UMTS					

Legend:

<i>italics</i>	Auction
bold	Beauty contest
GSM	GSM spectrum
DM	Digital mobile
UMTS	UMTS spectrum
FWA/WLL	Fixed Wireless Access/Wireless local loop
AR	Analogue radio spectrum
DVB-T	Digital TV spectrum
T-DAB	Digital Radio spectrum

Note: **AR** - Analogue radio spectrum – assignment may have taken place over the whole period of time shown, not for a specific year.

The above table shows that from 1990 to 1997 GSM licences were awarded by means of beauty contests. In some cases, not shown in this overview, the very first GSM licences were mere extensions of existing operators' licences.

The years 1998-1999 saw the emergence of auctions as an assignment instrument for the award of GSM licences in three administrations:

- in the Netherlands and Germany auctions took place for a second round of GSM assignments in 1998, after the initial licences had been awarded by beauty contests in 1995 and 1990, respectively.
- in 1999 Austria also held a GSM auction, the first of a series of auctions in that administration.

At the same time another five administrations continued to use beauty contests for assigning GSM frequencies.

The first UMTS licence was awarded in Finland in 1999 via beauty contest, while the period 2000-2004 saw the number of auctions for UMTS largely exceeding that of beauty contests with 9 auctions against 5 beauty contests.

In spite of the turning point which 2000 represents, the true beginning of the auction era, beauty contests are still used, also for GSM and UMTS spectrum. In the broadcasting area, it is worth noting that auctions are still more of an exception, and beauty contests are used more widely.

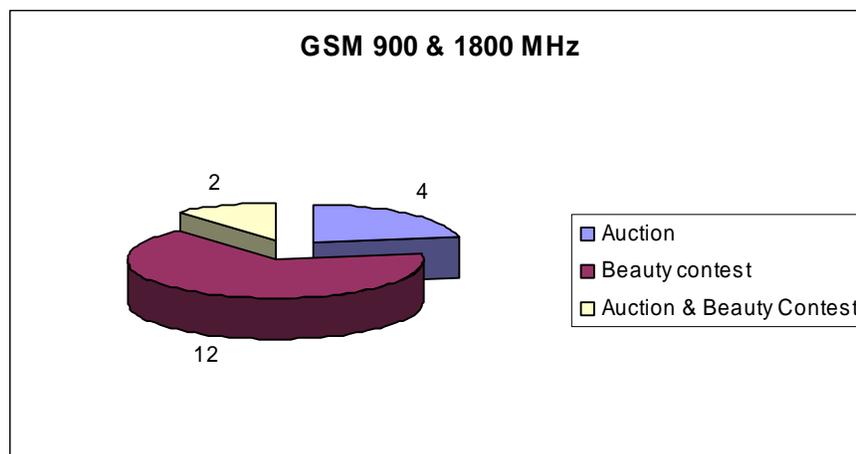
4.2 GSM

4.2.1 General remarks

GSM licences were awarded between **1990** (Finland) and **2004** (Lithuania).

Lithuania awarded GSM licences in 1994/1995/2000 and 2004. **Austria, Ireland** and **Norway** awarded licences on three occasions (1999/2001/2002, 1996/1999/2000, 1991/1998/2001 respectively), **the Czech Republic twice** (1996 and 1999), **Denmark twice** (1997 and 2000/2001) **Finland twice** (1990/2001), **France twice** (1991/1994), **Hungary twice** (1994/1999), **Switzerland twice** (1998/2003), **Germany twice** (1990/1998). **Poland** awarded licences in 1995, **Netherlands** in 1998, **Sweden** in 2002 and **Cyprus** in 2003.

Instruments used for assignment of GSM spectrum:



GSM licences were awarded via auctions in **Austria, Cyprus, Germany** (additional frequencies only), **Netherlands, Norway** (remaining frequencies only) and **Turkey**, i.e. in **4** countries out of 17 countries it was used as the only instrument and in **2** additional countries it was used for a later assignment of remaining or additional frequencies. In the remaining countries **Czech Republic, Denmark, Finland, France, Hungary, Ireland, Lithuania, Portugal, Slovak Republic, Switzerland** and for the first assignment in **Germany** and **Norway**, a beauty contest was used. **Poland** is the only administration

among those responding that uses a combined approach for GSM. However, this combined procedure can be likened to a beauty contest, as it has in fact all the characteristics of a beauty contest with the addition of a bid, but no auction has been run as part of the procedure.

4.2.2 Beauty contests

The choice of a beauty contest in the case of GSM licences in **Denmark** was based on a political decision. It was seen as the best way to secure effective use of the 2G frequencies at the time (in 1997 and 2000/2001).

The **Czech Republic** chose a beauty contest for their GSM licences as it enabled the administration to take account of specific requirements in awarding the licences.

Finland assigned GSM licences by means of beauty contests in 1990 and 2000 as laid down in their Telecom Act.

The beauty contest type of selection suited both the market conditions and the legal background in **Hungary**. It was used in 1994 for GSM and in 1999 for GSM-DCS.

In **Ireland** beauty contests also best suited the national market.

Lithuania assigned GSM frequencies by means of a beauty contest in 2004 as economic gains were not the aim. The same applies to the **Slovak Republic**.

Poland chose a beauty contest with bids that enabled an objective distribution of radio frequencies and economic efficiency, while taking account of the policy objectives with regard to the development of telecommunications markets.

Portugal also chose a beauty contest to grant GSM licences.

For **Switzerland** GSM licences were awarded in 1998 via beauty contests to avoid distortions with regard to the incumbent operators, and in 2003 to stimulate the market and favour innovative projects.

In **Norway** and in **Germany** only the first assignments of GSM frequencies were carried out via beauty contests, while auctions were used for the remaining 900 and/or 1800 MHz frequencies later. **Norway** chose beauty contests in order to ensure large national coverage, which was the most important parameter in the selection.

For **France** it should be noted that the first GSM licences were the result of an extension of analogue licences assigned in 1991 to France Telecom and SFR, the latter having been awarded such licence via a beauty contest in 1987. A further GSM licence was awarded in 1994 by means of a beauty contest.

4.2.3 Auctions

Austria used auctions for GSM assignments in 1999, 2001 and 2002, as stipulated in the Telecommunications Law. For **Germany** auctions are the instrument to be used in case of scarcity of spectrum, as defined in the Telecom Law. In **Turkey** the use of auctions for spectrum in case of scarcity is also embedded in the Law.

Cyprus chose to auction GSM licences in October 2003 for transparency and economic efficiency reasons, and because it avoids political lobbying, provides clear rules upfront and does not require any assessment by the administration. It is also faster than a comparative process, and fewer licence conditions need to be enforced.

The **Netherlands** chose to auction GSM spectrum in 1998 on grounds of transparency and in order to select the financially strongest party who would best fulfil the goals of an efficient use of the spectrum.

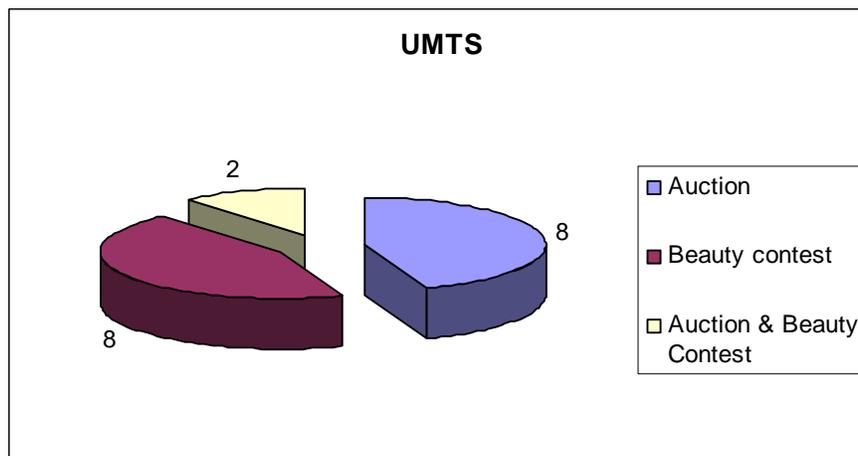
Norway auctioned GSM 900 and 1800 MHz licences in 2001 to encourage efficient use of spectrum via objective, transparent, non-discriminatory and proportionate selection criteria.

4.3 UMTS

4.3.1 General remarks

UMTS licences have been awarded from **1999** (Finland) until today. Hungary was planning a beauty contests to be announced in end **2004**.

Instruments used for assignment of UMTS spectrum:



Eight administrations (**Austria, Cyprus, Denmark, Estonia, Germany, the Netherlands, Switzerland and the United Kingdom**) used auctions to assign UMTS spectrum, and **eight** further administrations (**Finland, France, Hungary, Ireland, Poland, Portugal, the Slovak Republic and Sweden**) have used or plan to use beauty contests; **Poland** and **Switzerland**, which indicated having used a combined criteria, have used a beauty contest with a bid and an auction after a pre-selection on certain basic criteria, respectively, which is why they are not shown separately. **Norway** initially used a beauty contest and later on an auction for remaining frequencies. **The Czech Republic** also first used a beauty contest, but because it was unsuccessful, a sealed bid auction took place in a second attempt to assign the UMTS spectrum. **Cyprus** authorised UMTS spectrum in the same auction as GSM spectrum.

4.3.2 Beauty contests

In **France** some criteria other than the financial ones were deemed important by ART and the French Ministry of Industry, such as network size and roll-out timeframe, project consistency and credibility, business plan and service offering.

Thus two beauty contests based on differently weighted general-interest criteria were issued:

- the first beauty contest allowed to award UMTS licenses to Orange France and SFR (*UMTS licence awards published in the Gazette on 21 August 2001*);
- the second beauty contest allowed to award a UMTS license to Bouygues Telecom (*UMTS licence award published in the Gazette on 12 December 2002*).
- Three licenses were awarded among the four available.

Hungary was planning a beauty contest for UMTS licences in 2004 because of the positive experience gained with that instrument for GSM licences.

Ireland - as for GSM - used a selection procedure which was best suited to the Irish market.

Poland chose the same combination of beauty contest with bid as for GSM, with a view to determining a winner of quality as well as receiving high revenues for the National Treasury.

In **Portugal** the decision to hold a beauty contest was taken after some market survey was carried out by a consultancy.

In addition, **Sweden** mentioned the primary objectives pursued with the assignment via a beauty contest, which had been to provide end users with high quality services, affordable prices and connectivity throughout the whole country. This last factor has been the main reason for choosing beauty contest as assignment method since it enables the administration to put certain demands on the way infrastructure shall be built (not only densely populated areas).

4.3.3 Auctions

The reasons for choosing an auction (in short: transparency, objectivity, efficiency or determined by law) were similar to those cited for the auctioning of GSM licences. One important difference between GSM and UMTS assignments is the fact that some countries which had chosen beauty contests for GSM assignments moved to auctions for UMTS assignments.

As mentioned above, the **Czech Republic** reverted to an auction for the same assignment in 2001 because the beauty contest had failed; the choice of a sealed-bid auction was based on advice from consultants. Two operators bought UMTS licences in 2001, the third operator only expressed its interest to buy the licence in the future. The third operator bought that last licence in February 2005 after submitting a bid.

In **Denmark**, where GSM spectrum had been assigned via beauty contests, it was a political decision to use an auction for UMTS; this was also the case in **Estonia**, where in 2004 the Parliament also opted for auctions for UMTS.

As for GSM, **Norway** initially held a beauty contest in 2000 to ensure wide national coverage with UMTS licences, but in 2003 opted for auctions to assign two vacant licences in order to achieve the objectives of efficient use of spectrum, transparency, objectivity and proportionality.

Switzerland's goals with the UMTS auction were to achieve transparency and efficiency, establish market values for the licences and promote competition and innovation. After a pre-selection to determine suitable candidates, via a multiple-round auction selection of the licensees took place by award to the highest bidder. The pre-selection aimed at checking whether the candidates were able to respect all the obligations of the telecommunications law, to make sure that they had the financial capabilities to pay the licence fee (bank guaranty) and to implement special obligations such as coverage, co-use of sites and national roaming obligations. Only candidates who fulfilled these conditions were allowed to participate in the auction.

The **United Kingdom** ran auctions for UMTS for its open, non-discriminatory and transparent characteristics. For the UK, an auction places spectrum with those who value it most and who are therefore likely to develop it most effectively. This provides a fair opportunity for new entrants when competing alongside incumbents. Carefully designed and well run auctions, with well informed bidders, will achieve market prices.

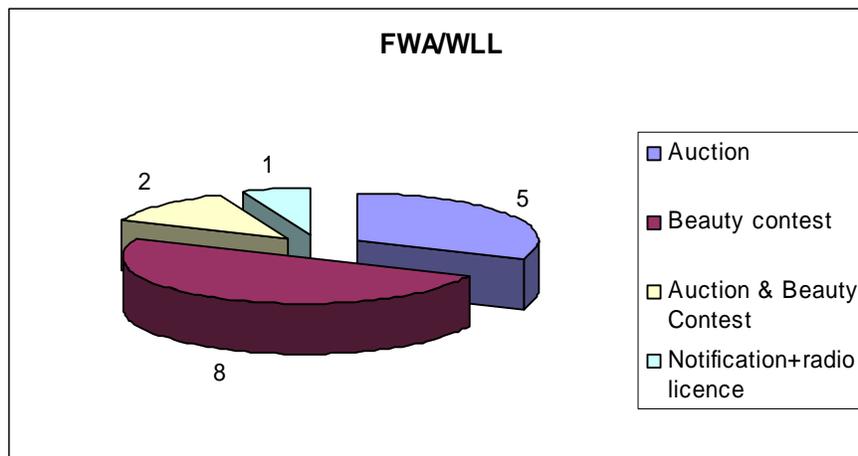
4.4 FWA/WLL

4.4.1 General remarks

FWA/WLL spectrum has been assigned from 2000 up to now via auctions and/or beauty contests in **fifteen** out of the **twenty** responding administrations.

Cyprus, Estonia and Turkey seem not to have assigned that part of the spectrum yet.

Instruments used for assignment of FWA/WLL spectrum:



Five administrations (**Austria, Hungary, Netherlands, Switzerland, United Kingdom**) used auctions to assign FWA/WLL spectrum while **eight (Czech Republic, France, Germany, Ireland, Portugal, Poland, the Slovak Republic and Sweden)** used a beauty contest (Poland used a beauty contest that included a bid). **Norway** used a beauty contest and was planning an auction in 2004. **Denmark** first held a beauty contest and later an auction.

4.4.2 First come first served

Norway adopted a first-come first-served approach during the period 1998-2001, while **Finland** is the only administration that currently relies on notifications and attribution of a radio licence for that part of the spectrum. The reason for this is most probably the absence of scarcity in the FWA spectrum in Finland. As a general rule, selection procedures shall only be used by administrations in case of scarcity, therefore the first-come-first served method will always be the primary choice when no scarcity exists.

4.4.3 Beauty contests

The **Czech Republic** granted FWA licences via beauty contests at 26 GHz in 2000, at 3.5 GHz in 2001 and 2002, and at 28 GHz in 2004. A beauty contests was chosen as it enables the administrations to take account of specific requirements.

Norway, which assigned FWA licences via beauty contests in 2001, is planning an auction of the band 3.41-3.6 GHz to encourage efficient use of spectrum, transparency, objectivity and proportionality.

Similarly, **Denmark** carried out a beauty contest in 2000 and an auction in 2004, following a political decision in each case that favoured each respective instrument to secure effective use of the frequencies for FWA.

France granted 2 nationwide licences, 44 regional licences and 8 overseas licences by means of a beauty contests, this instrument having been chosen following a call for comments.

Germany assigned WLL spectrum via beauty contest in 1999.

Ireland held a beauty contest which was best suited to the Irish market.

Portugal also held a beauty contest for FWA.

Poland has used the same approach as for UTMS and GSM spectrum, for FWA/WLL in 2000, on the same grounds.

The **Slovak Republic** held a beauty contest as determined by the law.

4.4.4 Auctions

Some administrations that used auctions for GSM and/or UMTS also ran auctions for FWA/WLL (**Austria, Netherlands, United Kingdom**), on the same grounds.

In addition, **Hungary**, which used beauty contests for both GSM and UMTS, selected auctions for FWA/WLL in 2002. The reasons for this choice relate to the specific market conditions for the frequency band concerned.

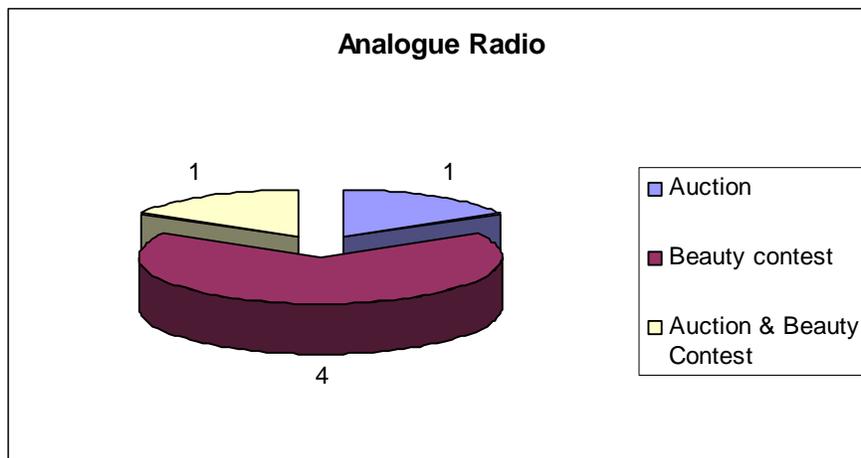
Switzerland also chose an auction for FWA, like for UMTS, on grounds of transparency of the process as well as to fulfil the objectives of attracting new entrants with national and regional licences, and of promoting competition and innovation of the access network.

4.5 Broadcasting

In a number of administrations a separate government body is in charge of assigning broadcasting spectrum. Furthermore, in **Cyprus**, digital radio and digital TV licences have not yet been assigned.

4.5.1 Analogue radio

A number of administrations have not provided any information, presumably because that part of the spectrum does not fall within their area of responsibility.



Austria has had about 60 procedures (beauty contest) from 2001 until now. The assignment instrument is laid down in the Private Radio Law.

Denmark has auctioned analogue radio spectrum. An auction was cancelled in 2004 as only one application was put forward.

Allocation of TV & radio frequencies is free in **France**. As laid down in the law about communication freedom, before granting licences a call for tenders is organised whereby the selection criteria defined in the law relate to the economic situation of the candidates, the content of the service, the needs of the population covered and pluralism amongst other. There is no weighing of criteria.

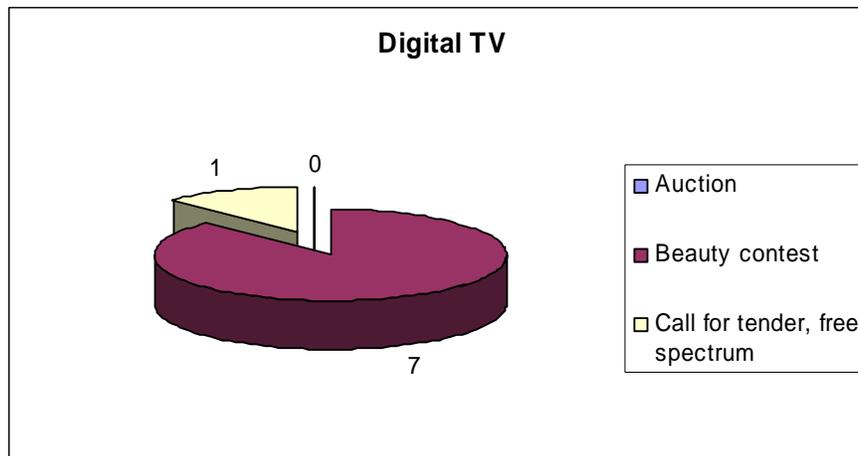
In the **Netherlands**, a beauty contest was used for analogue radio in order to fulfil certain cultural policy objectives while ensuring efficiency via a voluntary final bid in case proposals assessed in the first part of the selection procedure were of equivalent quality.

As for other parts of the spectrum, **Norway** used several approaches: Norway held beauty contests up until 2003 to ensure wide national coverage and to fulfil cultural goals, but auctions were being considered for vacant transmitter licences in 2004.

In **Lithuania** beauty contests have been carried out regularly since 1996 for analogue radio.

4.5.2 Digital TV

Out of the **twenty** respondents, **eight** provided information on digital TV licences and one (**Cyprus**) has not carried out any assignment so far.



Only beauty contests have been foreseen or used for assigning digital TV licences.

Austria has planned a beauty contest for 2005.

Finland carried out a beauty contest in 2002 according to their Private Television Law, and the **Netherlands** in 2001, this instrument being chosen to ensure specific objectives relating to interference would be fulfilled. **Germany** held a beauty contest in 2004.

As for radio frequencies, the law on communication freedom applies in **France**, and licences are granted for free after a call for tender.

Lithuania has planned or carried out a beauty contest in 2005.

In the **Netherlands** a planned beauty contest for digital TV licences, which was combined with a predefined financial instrument (payment schedule based on revenues), had to be deferred as only one interested party emerged.

As for analogue radio assignments, **Norway** carried out a beauty contest in 2003 with a view to ensuring wide national coverage and to fulfilling cultural goals.

Portugal also held a beauty contest for that part of the spectrum with a view to promoting the development of the information society, innovation and competition in particular.

4.5.3 Digital Radio

Only four administrations have assigned digital radio spectrum, all by means of beauty contests.

Austria and **Cyprus** have not scheduled any assignment for digital radio, and digital radio licences have not been assigned in the **Netherlands** either.

In **Denmark** the licensee of both the fifth and the sixth FM radio channel will have at their disposal 256 Kbit/s in the first nationwide DAB blocks, i.e. by winning the auction for analogue radio they were automatically awarded rights for transmitting DAB. The right to use DAB also implies a duty to broadcast programmes in digital form.

Finland and **Lithuania** ran beauty contests for that part of the spectrum in 2002 and 2003, respectively.

Portugal also held a beauty contest for digital TV, based on the results of a technical study carried out by a consultancy.

4.5.4 Other assignments

- **Universal service licence:**

The Swiss legal framework imposes the use of beauty contests for this type of licence.

- **Paging:**

Germany had an auction in 1996 for the use of frequencies for paging services (ERMES). **Portugal** held a beauty contest for paging services.

- **450 MHz band:**

Norway carried out a **technology neutral auction** for the 453-457.5/463-467.5 MHz frequencies to encourage efficient use of the spectrum and to have objective, transparent, non-discriminatory and proportionate selection criteria with a minimum of coverage requirements. **Sweden** carried out an auction in 2005 to assign one 450 MHz licence for Digital Mobile operation.

- **Analogue TV**

Austria carried out a beauty contest for analogue TV frequencies in 2001/2002 as laid down in their Private Television Law.

- **Multichannel Multipoint Distribution Service (MMDS)**

MMDS licences were assigned by means of a beauty contest in the **Slovak Republic** as foreseen in the Law.

- **Trunking system**

Portugal held a beauty contest for trunking systems.

4.6 Choice of selection procedure

First of all it should be noted that none of the administrations that responded to the survey have used a truly combined procedure. For the three administrations which indicated having used a hybrid system, further analysis revealed that the selection procedure was based either on a simple pre-selection (assessment of basic criteria to determine the suitability of the candidate) followed by a regular auction, which de facto makes it an auction, or, on the contrary, the selection instrument was a beauty contest which included a financial bid. Such financial bid did not emerge as the result of an auction, but was either a criteria used to differentiate candidates of equal quality or used as one criteria in the overall assessment, meaning that the higher bids gave the corresponding candidate a better score for that criteria. In this case, the combined procedure corresponds to a beauty contest and has been represented as such in the above charts.

Secondly, in some administrations, such as **Austria, Germany and Turkey**, the use of auctions seems to be incorporated in the law, while in other administrations (e.g. **France**) beauty contests are defined as the instruments to be used in case of scarcity of spectrum. No precise information was, however, provided as to the reasons why the choice is made at the legislative level and what were the reasons for choosing the instrument at this point, while in other administrations more flexibility is left to the government or to the regulator, who may decide on a case-by case basis which of the two instruments will be used. This enables the government or regulator to assess the particular market conditions for a specific frequency at a particular point in time, so as to weigh the various advantages of an auction or a beauty contest for the fulfilment of different objectives. A reason often mentioned for using beauty contest is the positive effect on coverage, coverage having been one selection criteria in most beauty contests, at least for GSM and UMTS. Reasons often mentioned for choosing auctions, on the other hand, are the fact that auctions provide transparency, objectivity and market efficiency.

There is a perception that auctions are easier to run than beauty contests. Beauty contests, at least in the case of UMTS, required the involvement for days on end of teams of expert in the respective administrations, subject to very strict confidentiality measures, working away from their own office and

going through thousands of pages of applications. The perceived difficulty relates to the heavy burden on the administration's human resources rather than to the complexity of the task as such.

Although auctions may seem easier to organise and run to those who have not held any, it seems that in administrations where auctions took place, the process is not always seen as easy or easier than beauty contest. The difficulty is of a different nature as the auction is a complex process in itself. Both the logistics (sometimes the presence of bidders for several weeks in a secure location) as well as the fact that consultants have to be hired to prepare as well as run the auction (which also adds to the costs of the procedure) show that it is not necessarily a simpler process. The type of activity involved in the organisation and running of each instrument is simply of a different nature.

As shown in the beginning of this section, beauty contests were used from the beginning of the nineties for GSM licences. It is only towards the end of the decade that auctions emerged and were widely used in the case of UMTS. After the UMTS experience, though, the mixed results and the highly political sensitivity of the subject led governments to be more cautious in the choice of assignment instruments, which is probably why both instruments are still being used.

Last, but not least, the case of broadcasting licences, where only one auction has taken place while beauty contests are used more widely, illustrates the fact that one instrument does not fit all, and that after the euphoria that characterised the year 2000 with the widespread use of auctions, beauty contest are not on the way out. For market reasons, or for safeguarding certain general interest goals, one or the other instrument may be more appropriate.

5 DESIGN USED

This section aims at highlighting the various elements that characterized both beauty contests and auctions used in the administrations that responded to the survey.

It should be noted that for both auctions and beauty contests, some pre-selection may take place with a view to checking the suitability of candidates. Such pre-selection, which could be considered a formality, aims at checking e.g. the financial capability of the applicant, the legal form and the ownership structure of the undertaking, whether the undertaking is a telecom undertaking etc. The pre-selection does not aim at assessing a project, but at making sure that the applicant would be in a position to fulfil the obligations that would be imposed on him in case a licence would be awarded. In some beauty contests these criteria may be part of the overall assessment of the candidate.

In total throughout the 20 administrations which responded to the questionnaire, 26 auctions and 34 beauty contests have taken place for the various parts of the spectrum investigated. The various frequencies considered are represented as follows in the columns of the tables in section 5.1 and 5.2:

- GSM= 1
- UMTS= 2
- FWA/WLL= 3
- *Broadcasting frequencies*
 - analogue radio= 4a
 - digital TV= 4b
 - digital radio= 4c
- Other frequencies= 5.

It should be noted that although all above cases are shown in a same table, very specific criteria, in addition to typical telecommunications criteria, are used to assign broadcasting spectrum because of the nature of broadcasting which is closely influenced by cultural aspects in most countries.

Where an administration has held several selection procedures for the same spectrum and the procedure has been the same, this is only shown as one overall procedure, e.g. although France assigned UMTS via beauty contests in 2001 and 2002, both cases are gathered in column "2" for France, as the same criteria applied. Where an administration has used first an auction and later a beauty contest or vice-versa, it appears in both section 5.1 and section 5.2.

5.1.2 Auction design

The above shows that most auctions run in the responding administrations have been simultaneous, multiple round, ascending bid auctions. Only three administrations have tried other auctions design:

- Denmark run a sealed-bid fourth price auction for UMTS licences² and an open-cry auction³ for the assignment of broadcasting.
- Norway used a combinatorial⁴, discriminatory price⁵ auction for GSM and discriminatory price auctions for UMTS, GWA and the 450 MHz band.
- Switzerland used an ascending bid but sequential multiple-round auction for FWA licences.

Although administrations have used similar auction designs, the means of implementing the auction elements may vary, depending on the goals of administration. Some of the elements in the second part of the table aim at preventing collusion (e.g. identity of the bidders not revealed), ensuring a certain speed of the process (e.g. pre-fixed increments) or certain financial requirements (e.g. minimum bid).

5.1.3 Practical arrangements

As to the logistics of the auctions, different approaches have been chosen. A majority of auctions were held at a secure location, while only two administrations had internet-based bid with fax or phone back-up.

5.1.4 Conclusions

After experience with auctions has been gathered over the last few years, certain aspects of auctions held may appear to have been overly complicated: the rigidity of the organisation of auctions at secure location, for instance, has become obvious and the implementation of certain measures taken to avoid collusion such as rules on whether to reveal the last bid after each round or not or the identity of the last bidder may have proven unnecessarily burdensome.

Bearing in mind the constant improvements brought about by IT developments in particular in the area of interactivity and communications security, and noting that auctions have become a more “natural” way of assigning spectrum, one could expect a simplification of auction design and auction implementation in the future. The use of remote internet-based bidding in particular can be expected to increase in the future, in a move towards simplifying auction logistics.

² The four licences were allocated at the price bid by the fourth highest qualified bidder.

³ *Ascending English Open-Cry auction*: auction where the bidding starts at zero and the bidders keep on out-bidding each other by increasing the bid value until only one bidder is left who gets the item.

⁴ *Combinatorial auction*: “a multiunit auction in which each bidder offers a price for a collection of goods (of the bidder's choosing) rather than placing a bid on each item separately. The auctioneer selects a set of these combinatorial bids which raises the most revenue without assigning any object to more than one bidder” (source: *GameTheory.net*)

⁵ *Discriminatory price auction*: “multiunit auction in which every winning bidder pays a different price which depends on the actual bid placed by each winning participant. Alternatively, a multiunit auction can be of uniform price in which all winning bidders pay the same amount”. (source: *GameTheory.net*)

5.2.2 *Selection criteria*

Per definition beauty contests enable administrations to exert more influence in the assignment process than through auctions, thus ensuring that certain policy goals are fulfilled. This explains the variety of beauty contests criteria used in CEPT administrations and the greatest variety of “design” as opposed to auctions.

Although nearly every administration has a particular way of naming selection criteria it has been possible to group some of them under a same heading as shown in the above table and to group those criteria in common overall categories. For most of the 15 administrations which have held beauty contests, tenders have been checked against one or more criteria of the following overall categories:

- a) Applicant’s qualification
- b) Characteristics of the service
- c) Economic impact
- d) Financial aspects
- e) Technical aspects
- f) Other.

a) Applicant qualification

The applicant’s experience or expertise has been checked in ten out of the fifteen administrations that have carried out beauty contests.

b) Characteristics of the service

Criteria related to the type of service to be offered have been used in eleven out of fifteen administrations. Specific aspects that have been taken into account in assessing tenders are, on the one hand, service-related with e.g. the type of service and the innovative aspect of the services to be provided, and on the other hand consumer-related, with items like customer care, quality of service or satisfying consumer needs for instance.

The launch date has also been a determining factor in six of the fifteen administrations considered.

In the case of broadcasting licences that were granted via beauty contests, the safeguarding of pluralism has also been an assessment criterion as mentioned by two administrations.

c) Economic impact

Three different elements have been used by administrations in this area: the impact of the project on competition (six administrations), the promotion of new entrants (one administration) and the contribution to efficient use of spectrum (four administrations).

d) Financial aspects

The overall financing of the project as well as the solidity or credibility of the business plans have been mentioned as assessment criteria by half of the respondents, while in three administrations the quality of the financial bid included in the tender proposals played a role. In three administrations performance guarantees have also been checked.

e) Technical aspects

The technical feasibility or technical quality of the project was a selection criterion in over half of the administrations that held beauty contests. Coverage plans, the roll-out speed or the deployment of the networks have also been used by a number of administrations, while in a couple of administrations only the network capacity, the sharing with MVNO and site sharing have been considered

f) Other

Further selection criteria range from environmental issues to impact on employment or experience in the country, which clearly highlights the kind of policy goals that may be pursued by a particular government through the granting of licence.

Project management and the clarity of the proposals are other general aspects of applications that have been used to discriminate candidates.

5.2.3 Practical arrangements

As to practical arrangements put in place by administrations as shown under “Logistics” there are less elements than for auctions, which shows that at least in practical terms, beauty contests are more straightforward to arrange than auctions.

5.2.4 Conclusions

Beauty contests offer two main advantages for administrations: they are rather simple to organise in terms of logistics, although some administrations are of the view that they require the involvement of more human resources than auctions, and they enable the administration to pursue certain policy goals, in addition to spectrum efficiency. In fact spectrum efficiency has been outlined as a specific selection criterion in only a few of the administrations that have held beauty contests. The characteristics of the service in particular and the impact on certain areas (e.g. competition, society, culture) seem to be essential for administrations.

On the other hand the variety of information to be provided and the wide range of criteria to be fulfilled in beauty contest proposals show that the burden put on operators may be considerable. However, it is difficult to conclude whether auctions are less burdensome for operators as the preparation of an auction process also requires considerable resources on the part of the operator (e.g. familiarisation with auction rules, training, hiring of auction experts and lawyers, adapting business plans depending on potential bids etc.).

6 RECOVERY OF THE COSTS INCURRED BY THE SELECTION PROCEDURES

The cost incurred by the organisation and running of auctions and beauty contests have been recovered differently by CEPT countries, as shown in the table below:

	Successful bidders/ applicants	All bidders	Government/ regulator	Admin. charges	No recovery	Fixed fee	Fee for application documents
AUT	X		X				
CYP			X				
CZE			X				
DNK		X					
FIN						X	
D			X				
EST	X						
F					X		
HNG			X				
IRL	X			X			
LTU		X				X	X
HOL	X						X
NOR			X				
POL			X				X
POR				X			
SVK			X				
S					X		
SUI		X		X			
TUR			X				
UK	X						

In ten administrations (Cyprus, Czech Republic, France, Germany, Hungary, Norway Poland, Slovak Republic, Sweden and Turkey), the state budget or the regulator has to cover the costs (out of those, two administrations do not recover their costs, which means that also there the state/regulator is liable) while in five administrations (Denmark, Estonia, Lithuania, Netherlands, United Kingdom), either the successful

bidders/applicants or all bidders/applicants are liable for those costs. In **Austria** both the state and successful bidders cover the costs.

Three administrations (**Ireland, Portugal and Switzerland**) cover the cost of organisation and running selection procedures by an administrative charge paid by successful candidates or all candidates. In **Switzerland** all participants share the costs of the pre-selection procedure e.g. the time spent for the evaluation of the applicant's dossier as well as the costs of the selection procedure.

Two administrations (**Finland, Lithuania**) have a fixed fee per application for beauty contests. In Finland this fee was only introduced in 2003.

In addition, three administrations (**Lithuania, Netherlands and Poland**) charge for the application documentation, thus covering some of the costs.

Although the responses received vary, in nearly all cases one could say that the costs of organising and running a selection procedure are carried by successful bidders/applicants, as, in fact, even when costs seem to be borne by the State or the regulator, the money is netted off from the payments made by successful bidders/applicants.

7 REACTIONS FOLLOWING AUCTIONS AND BEAUTY CONTESTS

It should be noted that in **Austria, Denmark, Finland, Germany Hungary, Ireland, Lithuania, Norway** and **Poland** no major criticism was expressed.

7.1 Lawsuits

Lawsuits were filed in **five** administrations.

In **Cyprus** the candidate that was disqualified at the pre-selection stage in the GSM/UMTS auction filed a complaint, while all other candidates, including those who lost in the auction, were content with the way the administration carried out the selection procedures.

Immediately after the **Dutch UMTS** auction, fierce political discussions took place on the issues of the low amount of money raised, on possible entrants being at a disadvantage and on the absence of safeguards in the auction. Later on critics stated that too much money had in fact been paid. Some four years on it appears that the UMTS auction did not have too bad results. Court cases have been filed by the sixth party participating in (and losing) the auction.

The **Slovak Republic** also experienced some court cases.

In **Sweden** court cases happened in the case of UMTS, mainly because the incumbent did not receive a licence, which caused some political turbulence. The court ruled in favour of the regulator, though.

In **Switzerland** the GSM beauty contest was followed by appeals at the federal court from the candidates who lost, but the appeal was overruled by the court.

7.2 Other criticism about selection procedures

In **Estonia** the high minimal bid was questioned, which leads the administration to rethink the calculation of minimal bids in the future.

In **Germany** the very stringent conditions imposed on the bidders (3 weeks isolation at the auction premises) caused to envisage remote bidding via electronic means so as to allow participants in an auction to remain at their workplace.

In the **Netherlands** the DCS1800 auction did not give rise to much criticism. On the subject of auction design an (academic economic) discussion emerged on whether or not a combinatorial auction had to be used, rather than the standard simultaneous multiple round auction. According to auction theory, a

combinatorial auction would indeed lead to more efficient auction outcomes, but this auction form is rather complicated and there is not much experience with it in practice.

After the **Swiss** UMTS auction, the resulting low price per licence gave rise to important political discussions, following which an additional article was introduced in the telecoms ordinance to allow the licensing authority to change, stop or interrupt the procedure in case general changes happened during the procedure. This article also makes changes to the minimum bid per licence possible. Because the FWA/WLL auction took place before the UMTS auction there was a high public interest in the press following the first days of the auction process. The amount of money raised for the treasury was the biggest issue discussed in public.

For the **United Kingdom** the main criticism was that auctions were a way of maximising revenue for the government (UMTS) although the administration believed the high fee was due to the demand for licences rather than to the auction itself.

8 LESSONS LEARNT FROM EXPERIENCE WITH AUCTIONS AND BEAUTY CONTESTS AND IMPACT ON FUTURE ASSIGNMENTS

8.1 Success with selection procedures chosen so far

A number of administrations (**Austria, Cyprus, Czech Republic, Denmark, Finland, Hungary, Ireland, Lithuania, Poland, Portugal**) foresee no changes to the use of auctions and beauty contests in the future. Reasons mentioned for reusing either auctions or beauty contests relate to the successful results achieved in the past with those instruments.

The **Norwegian** administration (NPT) will not advise the use of beauty contests again. There are no immediate plans to revise the default auction formats (sealed bid, sealed bid combinatorial and simultaneous ascending auctions). In order to promote entry, the NPT will consider conducting auctions using the English language. Keeping participation cost as low as possible is a priority. Norway sees the full introduction of secondary trading as a factor that may simplify auctions.

One administration – **Sweden** – although having obtained successful results with beauty contests e.g. in terms of fulfilment of policy objectives, considers auctions to be less complex to put in place and less expensive to run, while providing a competition oriented assignment instrument. On these grounds Sweden has investigated the possible use of auctions for future assignments.

For the **Slovak Republic** selection procedures have been defined by the 2004 Law, so no change is expected in the foreseeable future.

In **Turkey** a new regulation is under study and both instruments may be chosen.

For broadcasting frequencies in **France**, the *Conseil supérieur de l'audiovisuel* is in favour of maintaining the existing legislation in order to preserve the balance between free frequencies and strict legal obligations on contents (advertising restrictions, investment quotas, as well as quantity and quality obligations on broadcast programs).

8.2 Increasing use of auctions

It should be noted that **Austria, Cyprus, Estonia, Germany, Netherlands, Norway and the United Kingdom**, who have used auctions in the past, see those as the default assignment instruments in case of scarcity of resources for the future, in particular as they provide a more objective and transparent means of assigning spectrum.

Norway, like **Sweden**, reported that auctions are easier to run and less “troublesome” than beauty contests.

All this indicates that auctions will be used more in the future. Only for broadcasting frequencies may beauty contests still be used in most of the above countries, in order to fulfil specific cultural goals in particular.

Finland, Ireland, Lithuania and Portugal, on the other hand, will continue to use beauty contests. In **France**, the use of auction is not currently foreseen.

8.3 Potential improvements to auction design

Some countries, however, consider improvements or modifications to the way auctions have been designed.

For **Estonia**, electronic means (including e-signature) for bidding are being considered for future auctions and the level of the first bid is being given careful attention, taking into account the value of spectrum and market conditions.

Germany may consider bidding via internet or separate data lines in future auctions.

The **Netherlands** will favour simpler logistics, more use of combined, hybrid assignment methods in case of broadcast licenses and the offering of smaller lots in auctions, enabling bidding parties to decide themselves on the extent of their licenses

The **Czech Republic** foresees substantial changes only in relation to a broad implementation of spectrum trading, beauty contests having been preferred so far and no change being foreseen yet.

8.4 Choice of future assignment instruments on a case-by-case basis

For **France, Switzerland and the United Kingdom** the choice of auctions or beauty contests in the future will continue to be done on a case-by-case basis, depending on the type of spectrum to be assigned and policy objectives pursued via the assignment.

The key lesson to be drawn from the UK auctions is the need for careful design and planning, with scrupulous attention to detail in formulating auction rules and administrative procedures and in informing and training bidders. Although auctions are considered the default mechanism for awarding licences in the UK, alternative mechanisms will be considered where appropriate.

In **Denmark** both auctions and beauty contests are foreseen in the legislation, but the final decision on the choice of either instruments lies with the minister.

8.5 The Norwegian “mapping” approach

Over the last years Norway has developed a solution to “map” / examine demand; the administration publishes information when an application is received, giving all interested parties the opportunity to apply for a licence by a certain deadline (usually 6 – 12 weeks from publication). If no more than one application is received, the licence is assigned to the only applicant shortly after the deadline. If mutually exclusive applications are received, the allocation is done by auction. This approach is most probably used in other administrations that first assess the level of competition for a specific licence before deciding on a first-come first-served or selection procedure.

However, Norway has taken the “mapping” concept one step further through the publication of an “own initiative overview” of vacant spectrum in certain bands, and the organisation of rounds of allocations four times a year. The same principle applies: if only one application is received, the licence is assigned to the only applicant shortly after the deadline, and if mutually exclusive applications are received, the allocation is done by auction.

The policy objective pursued with the concept of “mapping” / examining demand via the publication of vacant frequencies is to get information on demand for the vacant spectrum in order to find out whether it may be allocated on a “first-come, first- served” basis at a definite moment in time or via an auction, if more than one undertaking is interested.

9 OPERATORS’ VIEWS

WGRA invited ETNO to provide their views on auctions and beauty contests. ETNO represents the voice of 41 of Europe’s largest, well established telecoms operators in 34 countries. All ETNO members operate fixed and/or mobile radio networks and are currently involved in authorisation and requests for rights to use spectrum. Furthermore, a few ETNO members operate broadcast networks.

The full ETNO contribution is provided at Annex 2.

The main issues raised by ETNO can be summarised as follows:

On authorisations and rights to use spectrum:

- There is a need for harmonised frequency assignment procedures;
- Because of the transformation of traditional markets through new technologies, the distinction between incumbents and new entrants becomes more and more artificial and such distinction should not be used to exclude incumbents from assignment procedures in the future;
- When considering new assignment procedures, regulators should maintain a level-playing field for all radio spectrum users;
- As a result of increasing convergence of systems and services new entrants should not be in a position to provide substitutive services with spectrum acquired at lower prices than prices paid by operators in earlier procedures, as this would lead to distortion of competition;
- In case of premature withdrawal of licences refarming funds should be used to compensate stakeholders' investments.

On auctions and beauty contests:

- ETNO supports the merits of beauty contests in terms of greater cost proportionality and greater flexibility for later modifications if appropriate. On the other hand, it is acknowledged that auctions, provided that the auction principles have been well considered and designed to avoid negative side effects:
 - are fairer and more transparent
 - may provide efficient results and in theory place the spectrum in the hands of those who value it most;
- Where used auctions should be designed to avoid artificially raising costs;
- Further ETNO suggests spectrum pooling may be an alternative although no further details are given on this matter;
- ETNO advocates harmonisation in Europe of a common set of principles describing criteria for appropriate assignment procedures and defining what principles should be considered in choosing a certain assignment procedure.

On spectrum costs and charges:

- ETNO is of the opinion that charges paid for radio spectrum exceeding the costs for administrative spectrum management - either caused by auctions or spectrum fees - should be avoided as far as possible and in any case should flow back into the telecommunications sector for the benefit of the information society.

10 CONCLUSIONS

- In spite of the impression that a lot has been written and published on the issue of auctions and beauty contests, there is a lack of information on national experience. This may be due to the fact that auctions and beauty contests are still a sensitive issue and the experience made, in particular with UMTS, cannot be discussed completely openly. For administrations who envisage auctions for the first time however, there would be a benefit in having easy access to other NRA's experience via reports or studies and analyses they may have carried out or mandated to external consultants.
- The use of auctions only really started at the end of the nineties. After a few years' experience it seems that auctions have not become the one and only assignment instrument in case of scarcity of spectrum. Some administrations have made a choice to resort only to auctions in case of scarcity, which is embedded in their telecom law, while others have kept the freedom to decide on a case-by-case basis which instruments to use.
- Even after the wave of UMTS auctions, some administrations have chosen to hold beauty contests, based on national market conditions and other factors. This reinforces the fact that one instrument does not fit all and there is a merit in making a decision on a case-by case basis.
- The use of external consultants seems to be a must in the case of auctions while it is less used for beauty contests. The involvement of consultants for auctions may add credibility to the selection procedure while also ensuring that optimal knowledge has gone into the process, but it also shows the complexity of

designing and implementing an auction as opposed to holding a beauty contest, and also adds to the costs of running auctions.

- The perception that auctions are easier to organise and run than beauty contests is somewhat erroneous. The responses to the survey show that the types of difficulty associated with each instrument are of different nature, which in turn result in different levels of complexity. Therefore it is not possible to conclude that one type of assignment is easier than the other.
- One of the arguments in favour of using auctions is the fact that it fulfils the requirements of transparency, objectivity and efficiency in particular. The drawback of beauty contests, on the other hand, is the lack of transparency and the fact that objectivity may not be safeguarded. However, there is no evidence that beauty contests are more prone to legal challenges than auctions, which confirms the legitimacy of both instruments.
- While auctions may be better suited for ensuring transparency, objectivity and economic efficiency in granting licences, beauty contests offer a better means of pursuing specific policy goals.
- It should be noted that few administrations foresee changes to selection procedures, and the changes foreseen are minor, which seems to indicate that in the eyes of administrations beauty contests and auctions have been successful instruments for granting rights of use of spectrum in case of scarcity.
- Operators – as represented by ETNO - do not favour a specific assignment procedure. They support the merits of beauty contests in terms of greater cost proportionality and greater flexibility for later modifications, if appropriate, while acknowledging that auctions are fairer and more transparent, provided that the auction principles have been well considered and designed to avoid negative side effects (including artificial raising of costs). They also recommend harmonisation of criteria and principles for defining and choosing assignment procedures.

ANNEX 1

LIST OF CEPT COUNTRIES AND THE COUNTRY CODES USED IN CEPT

(as approved by the CEPT Assembly 30-31 March 2004).

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

ANNEX 2

ETNO'S CONTRIBUTION

“Authorisations and rights to use radio spectrum

Art 5 of the Authorisation Directive states that: "Where Member States grant rights of use (radio spectrum) for a limited period of time, the duration shall be appropriate for the service concerned." This means for ETNO members that the duration should allow operators and users to recover their investments, i.e. a premature withdrawal of the rights should be associated with a fair financial compensation, e.g. from a refarming fund.

ETNO is in favour of non-discriminatory, proportionate and transparent procedures for frequency band assignments as well as conditions attached, as mentioned in Art 6 of the Authorisation Directive, and supports further efforts to harmonise attribution principles across Europe. Furthermore the procedures should be able to support a successful development of the market.

The progress in technologies leads to significant evolutions of services and transformation of traditional markets. As a consequence, maintaining a distinction between incumbent operators and new entrants becomes more and more artificial. Therefore, stakeholders exclusion from new spectrum assignments on a basis other than their capacity to invest or their competence seems not to be suitable.

Current frequency assignments are based on different procedures and mechanisms, even within one single country. Given the increasing convergence of systems and services this has to be taken in account when defining appropriate rules. Furthermore it has to be considered when introducing new assignment procedures that network operators have sometimes paid tremendous amounts of money to receive user rights for frequencies, otherwise distortion in competition will occur if new entrants can produce substitutive services based on frequency resources acquired at lower prices. For this reason one of the main assignment principles should be to maintain a level playing field for all radio spectrum users. This basic requirement is valid at national as well as international level. A clear roadmap, containing to the extent possible conditions of use and timescales of radio spectrum being made available for innovative services, would help to avoid or alleviate the problems highlighted above in the future.

Auction or Beauty Contest ?

The development of the electronic communication sector provides a basis for the progress of the information society. The main issues at stake are the reduction of the digital divide, the coverage of the whole European territory and the fast introduction of innovative services based on the development of technologies and associated industries. The attribution processes should be judged on these grounds, and not considered as an opportunity for governments to withdraw additional money from the economic sector in order to reduce their budget deficit.

The auction process appears to be particularly inappropriate when considering innovative technologies and new markets, as experienced with the attribution of 3G licences in Europe. To be convinced, one only has to compare post-auction evolution of 3G in Europe to subsequent noticeably different developments in Japan or in Korea. Besides disparities introduced in the situation of the different European countries, the whole sector has been seriously destabilised and the launch of new services delayed. In addition, competition and spectrum use efficiency have been reduced as in many countries the number of remaining operators is less than the number of licences offered initially. On the other hand, auctions may provide efficient results, provided that the auction principles have been well considered and designed to avoid negative side effects and to come to an optimal solution for the market. They also largely avoid the possibility to discriminate against any party (i.e. more fairness and transparency), and in theory place the spectrum in the hands of those who value it most (and hence may put it to the most economically efficient use). Where used they should be designed to avoid artificially raising costs.

Beauty contest seems to be better suited provided that the amount of fees imposed to the selected candidates remains proportionate to spectrum management costs. Moreover, the comparison between candidates made on the basis of geographical coverage, technical or commercial criteria encourage them to improve their provision of service, for the global benefit of society.

The possibility to adapt the attribution conditions of spectrum rights of use in case of failure of the procedure should also be considered. It appears easier to modify the conditions attached to a beauty

contest than those associated to auctions. For example, some countries adapted financial conditions associated with beauty contest which proved to be inappropriate.

ETNO takes the view that assignment and licensing procedures should be harmonised as far as possible throughout Europe. Harmonisation in this context doesn't mean that there is only one procedure which is applied for all kinds of frequency assignments. Instead there should be a common set of principles to describe the criteria how an appropriate assignment procedure - either auction or beauty contest, combinations of both or even other procedures - should take place and what principles should be considered in choosing one of these assignment mechanisms. The principles itself should be created in a way that they ensure the basic objectives mentioned in the first chapter.

Spectrum costs and charges

With regard to electronic communications, the use of radio spectrum allows the development of communication networks and provision of services for the benefits of the whole society. ETNO considers that spectrum fees higher than necessary for administrative spectrum management lead to higher costs of services for the customers, decreases the cost effectiveness of projects and harms development and investment in new innovative services and new equipment.

Moreover, it can be observed that diverging national solutions have proved to have unwanted consequences on competitiveness and market development. For this reason it has to be considered carefully what effects should be obtained by a certain assignment mechanism and how the basic objectives can be guaranteed.

ETNO is of the opinion that charges paid for radio spectrum exceeding the costs for administrative spectrum management - either caused by auctions or spectrum fees - should be avoided as far as possible and in any case should flow back into the telecommunications sector to foster the development of the information society.

ANNEX 3

CONTACT POINTS WITHIN CEPT ADMINISTRATIONS ON THE ISSUE OF SELECTION PROCEDURES

Country	Name & first name	Position	Telephone & Email
Austria	Mrs. Sabine JOHAM-NEUBAUER	Legal department Rundfunk und Telekom Regulierungs GmbH	+43 1 580 58-402 sabine.joham-neubauer@rtr.at
Czech Republic	Ebert Marek	Director of Regulation of Telecommunication Networks and Services Department	+420 224 004 760 ebertm@ctu.cz
Cyprus	Dr. Stelios D. Himonas	Director of the Department of Electronic Communications	+357 22 814 854 himonas@mcw.gov.cy
	Mr. George Komodromos	Electronic Communications Senior Officer – President of the Radiofrequencies Technical Committee	+357 22 814 873 gkomodromos@mcw.gov.cy
	Mr. Anastasios Elia	Electronic Communications Officer – Secretary of the Radiofrequencies Technical Committee	+357 22 814 875 aelia@mcw.gov.cy
Denmark	Susanne Mahler	Head of division	35 45 03 70 / sma@itst.dk
	Joy Torpdahl	Head of section	35 45 03 71 / jt@itst.dk
Estonia	Mr Rammus Arvo	Adviser	+372 693 1153
Finland	Mr. Toivonen Pasi	Head of Public Mobile Communications Division Finnish Communications Regulatory Authority	+358 9 6966 853 pasi.toivonen@ficora.fi
France	Ministry of Economy, Finance and Industry Mathieu WEILL	Forward planning and Economic Studies Office	+33 1 53 44 98 93 mathieu.weill@industrie.gouv.fr
	Jean-Pierre HUYNH	ANFR Economic studies	+33 1 45 18 73 77 huynh@anfr.fr
	André RICORD	Autorité de régulation des télécommunications (ART)	+33 1 40 47 71 44 andre.ricord@art-telecom.fr
	Michel DONZELLE	Conseil supérieur de l'audiovisuel (CSA) Frequency planning	+ 33 1 40 58 38 39 michel.donzelle@csa.fr
Germany	Mix, Carola	Head of section 215	+49 6131 18 1150
	Dreger, Ute	Head of section 212	+49 228 14 1220
	Jeutter, Gerhard	Head of section 213	49 228 14 1240
Hungary	Mr Havas, György	Senior Advisor Ministry of Informatics and Communications, Department of Radiocommunications	(36-1) 461 3375 gyorgy.havas@ihm.gov.hu
Ireland	Jim Connolly	Senior Manager Spectrum Management, Competitions & International Strategy	+353 1 804 9635 jim.connolly@comreg.ie

	Susan Fleming	Manager Spectrum Management	+353 1 804 9658 susan.fleming@comreg.ie
	Carmel McLaughlin	Broadcasting Manager	+353 1 804 9626 carmel.mclaughlin@comreg.ie
Lithuania	Mr Leonavičius Romualdas	Deputy Director of the Communications Regulatory Authority	+370 5 210 56 21 rleonavicius@rrt.lt
	Dr. Čėsna Augutis	Head of Frequency Management Section	+370 5 210 56 42 acesna@rrt.lt
Netherlands	Fokko Bos (UMTS)		f.g.bos@minez.nl
	Hans Kwakkenbos	Senior policymaker	mailto:J.I.Kwakkenbos@minez.nl +31 70 3798118
Norway	Fanebust, Erlend	Senior Advisor	47 22 82 47 27 erlend.fanebust@npt.no
	Hauge, Kristin Due	Senior Advisor	47 22 82 48 39 kristin.hauge@npt.no
Poland	Kornaszewski Marian	Director of Department of Telecommunication Market of Telecommunication and Posts Regulation Office	Tel: +48 22 5349 124 m.kornaszewski@urtip.gov.pl
Portugal	Afonso, Jaime	Head of planning and spectrum engineering department	+351 21 7212240 Jaime.afonso@anacom.pt
Slovak Republic			
Sweden	Hans Brändström	Head of Unit	+46 8 678 5500 hans.brandstrom@pts.se
	Charlotte Ingvar- Nilsson	Head of Unit	+46 8 678 5500 charlotte.ingvar-nilsson@pts.se
	Helén Lindqvist	Head of Unit	+46 8 678 5500 Helen.lindqvist@pts.se
	Magnus Janzon	Adviser	+46 8 678 5500 magnus.janzon@pts.se
	Åsa Möller	Head of Unit	+46 8 678 5500 asa.moller@pts.se
Switzerland	Von Arx Urs	Head of Section Mobile and Satellite Services	+41 32 327 58 56 urs.vonarx@bakom.admin.ch
	Blum Armin	Head of Section Fixed Network Services and Universal Service	+41 32 327 55 79 armin.blum@bakom.admin.ch
Turkey	Yanik, Deniz	Telecommunications Expert, Licenses and Agreements Department	+90 312 550 5251
	BuYukbas, Afsin	Telecommunications Expert, Licenses and Agreements Department	+90 312 550 5258
United Kingdom	Mr Sonke, Joe	OFCOM Manager Broadband Wireless and Auctions Riverside House 2a Southwark Bridge Road London SE1 9HA	+44 20 7783 4345 joe.sonke@ofcom.org.uk

ANNEX 4

LINKS TO OFFICIAL REPORTS OR STUDIES ON THE SUBJECT OF AUCTIONS AND BEAUTY CONTESTS MADE AVAILABLE BY NRAS

Denmark

- **Public tender for 2G (GSM900/GSM1800):**

For information and background material in general about the public tender for 2G (GSM900/GSM1800) see the following link:

<http://www.itst.dk/wimpdoc.asp?page=tema&objno=95024409>

- **Public tender for FWA:**

For information and background material in general about the public tender for FWA see the following link:

<http://www.itst.dk/wimpdoc.asp?page=tema&objno=95029237>

- **Public tender for TETRA:**

For information and background material in general about the public tender for TETRA see the following link:

<http://www.itst.dk/wimpdoc.asp?page=tema&objno=95029238>

- **3G auction:**

The following link is to the Information Memorandum which was prepared on behalf of the National Telecom Agency by N M Rothschild & Sons Limited as advisers in connection with the proposed allocation of spectrum for third generation (3G) mobile services by auction:

<http://www.itst.dk/wimpdoc.asp?page=tema&objno=95024346>

The Information Memorandum includes information about terms of the licences, regulatory issues, the auction etc.

- **FWA auction:**

For information and background material in general about the FWA auction see the following link (only in Danish): <http://www.itst.dk/wimpdoc.asp?page=tema&objno=145577545>

- **Auctioning of the fifth and sixth terrestrial FM radio channels**

For information on The Radio and Television Board's auctioning of the fifth and sixth terrestrial FM radio channels see the following link:

<http://www.mediesekretariatet.dk/bilag/tilsyn/fmkanaler/auctionengversion.pdf>

- **Auction of the vacant medium wave frequencies**

For information on The Radio and Television Board's auctioning of the vacant medium wave frequencies see the following link:

<http://www.mediesekretariatet.dk/bilag/mbauktion/udbudsmateng.pdf>

Finland

See the decision paper for the 3G licences on the 16th March 1999. The selection criteria can be found out in that decision.

<http://www.mintc.fi/www/sivut/english/tele/telecommunications/index.html>

or www.mintc.fi click 'Communications' and click 'Telecommunications' and click 'Licences for third-generation mobile networks'

France

- **UMTS beauty contests** (there were two beauty contests in France):

- <http://www.art-telecom.fr/>
- Then, "les grands dossiers", « l'UMTS » :
 - o [Le 1er appel à candidatures UMTS \(28 juillet 2000\)](#)
 - o [Le 2ème appel à candidatures UMTS \(29 décembre 2001\)](#)

- **WLL beauty contest**

- <http://www.art-telecom.fr/>
- Then, "les grands dossiers", « la boucle locale radio », "l'historique de la boucle locale radio" :
 - o [2001 : le nouvel appel à candidatures dans les régions Auvergne, Corse, Franche-Comté, Limousin et Guyane](#)
 - o [Fin 1999 : le lancement des appels à candidatures](#)

- **French thesis on Auction and comparative hearings : two ways to attribute spectrum licences**
<http://www.idate.fr/an/publi/revu/num/n35/GENTY.pdf>
- **Conseil d'Analyse économique**
 - <http://www.cae.gouv.fr>
 - Then, «Rapports» and «Economic Analysis of UMTS Project (09.04.2002)»
- **Digital terrestrial broadcasting**
 - http://www.csa.fr/multi/dossier/tnt_chap1.php?l=uk

Germany

See: www.regtp.de, and use the search function on the website and search for the following keywords: "UMTS" (auction); "GSM 1800 (auction); "WLL" (beauty contest).

Under these keywords you will find documents describing the auction procedure and the beauty contest.

Ireland

Digital Television

DTT

In 1998 this office commissioned NERA (98/06) to prepare a report on the Future Delivery of Television Services and the Way Forward ([98/20](#)) followed the close of a period of comment. These documents introduced the possibilities for National DTT in Ireland. Subsequently the Government prepared legislation which culminated in the Broadcasting Act 2001.

Under the Broadcasting Act 2001 the Government Department was given the responsibility to designate the transmission company and the operator of 6 digital multiplexes, with the NRA (ComReg) given the responsibility to licence the Multiplex and Transmission company (s).

See the Department of Communications, Marine and Natural Resources web site: www.dcmnr.gov.ie. The Department's Broadcasting Division's stated aim is to develop a policy and legislative framework to facilitate the provision of quality broadcasting services in Ireland, and to optimise the opportunities presented by the emerging technologies for the provision of new Irish-based broadcasting services.

For other broadcasting issues see Broadcasting Commission of Ireland web site: www.bci.ie. The Broadcasting Commission of Ireland is responsible for a number of areas of activity with regard to television and radio services in Ireland further to the provisions of the Radio and Television Act 1988 and the Broadcasting Act 2001.

Netherlands

- Analysys: Research into methods of frequency management, 4 December 2001
- Procesbeschrijving en verantwoording UMTS' (4 september 2000)
- de draad kwijt (tweede kamer, 2001,OCFEB; <http://www.seor.nl/ecri/pdf/DeDraadKwijt.pdf>)

Norway

No report, study or analysis has been performed by the NPT. However, information about rules, regulations, concessions etc. for completed and forthcoming auctions may be found at the following links (all information in English, unless otherwise stated):

- **For the GSM 900 and 1800 auction:**
http://www.npt.no/pt_internet/ressursforvaltning/frekvenser/utlysninger/gsm2001/index.html
(Norwegian only)
- **For the UMTS auction:**
http://www.npt.no/portal/page?_pageid=78.41189&_dad=portal&_schema=PORTAL&p_url=http://www.npt.no/pt_internet/eng/resource_management/frequency_management/licences/3G-auction03/3g.html

- **For the 450 MHz auction:**
http://www.npt.no/portal/page?_pageid=78.41224&_dad=portal&_schema=PORTAL&p_url=/pt_inter_net/eng/licences/index.html%20
- **For the 3.41-3.60 GHz auction**
http://www.npt.no/portal/page?_pageid=78.41224&_dad=portal&_schema=PORTAL&p_url=/pt_inter_net/eng/licences/index.html%20

Sweden

There are several reports written on this subject, they are however in Swedish. The only one that has been produced in English is the latest thinking on auctions as a method for assigning licenses. The report has been communicated with the market, and has got a positive feedback (in Swedish though).
<http://www.pts.se/Archive/Documents/SE/A-focus%20auktionsstudie%202004.pdf>

Turkey

In Turkish only:

<http://www.tk.gov.tr/Yavin/raporlar/arastirma.Raporlari.htm>

United Kingdom

- **3G auction index:**
<http://www.ofcom.org.uk/static/archive/spectrumauctions/3gindex.htm>
- **Report on 3G auction:**
http://www.nao.org.uk/publications/nao_reports/01-02/0102233es.pdf
- **Summary report on 28 GHz auction:**
<http://www.ofcom.org.uk/static/archive/ra/topics/bfwa/doc28ghz/summary.htm>
- **FWA auction index:** <http://www.ofcom.org.uk/static/archive/spectrumauctions/pfwa/index.htm>
- **Feedback from participants in the 3.4 GHz FWA auction:**
http://www.ofcom.org.uk/static/archive/ra/topics/pfwa/3-4ghz/docs/atkinssummaryfinal_report21.doc