Annual Report 2004

of the Regulatory Authority for
Telecommunications and Posts
in accordance with section 122
of the Telecommunications Act

Press Office• Tulpenfeld 4 • 53113 Bonn
Telephone: (02 28) 14-99 21 • Fax: (02 28) 14-89 75 • **http://www.regtp.de**
Switchboard: (02 28) 14-0
Responsible in terms of the Press Act: Rudolf Boll, Press Office

Welcome revival of competition in the broadband access market

Diversity promoting innovation and customer benefit

Intermodal competition between fixed and mobile kicking in

Last year, many of the concerns voiced about the telecommunications market possibly being 'remonopolised' and competition being weakened by the bursting of the dotcom bubble in 2000 were dispelled.

In the mobile markets there is still plenty of room for growth. UMTS services launched successfully with up to 70 percent network coverage, and there are attractive offers from the mobile operators seeking to migrate fixed-line calls and customers. And the forecasts often made by industry analysts of further consolidation and mergers in the mobile markets have not transpired either.

It is precisely the small providers who have achieved above-average growth with their innovative pricing plans and new distribution channels and who have energised competition.

The difficult situation for the competitors in the fixed-line business was significantly improved by strong growth in the broadband market. Over the last year, the competitors increased their share of the broadband market by leaps and bounds.

Of almost seven million broadband connections in Germany, 20 percent were operated by the competitors at year's end. In the previous year this figure was 11 percent, which means it has almost doubled within the space of a year. In the New Broadband Customers business, the competitors have gained 33 percent of the market, and this trend was strengthening at year's end as a result of their attractive offers and the Deutsche Telekom AG (DTAG) resale model.

The competitors, in some regions, have captured around 50 percent of the DSL access market. With regard to high speed Internet access services, the competitors' share of the national market is already 35 percent as against 65 percent for the DTAG Group. Last year alone saw a rise of nine percentage points.

This encouraging trend demonstrates the following:

- Competition is crucial to the spread of broadband.
- The market has shown that fears of a lasting 'monopolisation' here as a result of DTAG's investment and marketing activities since 2000 are unfounded.
- The process of catching up is accelerating rapidly, thanks to attractive packages offering an ISDN line with DSL access and an Internet flat rate for less than €40.
- An essential wholesale product for these offers is the local loop. The two million mark has now been passed and there was growth of 610,000 new loop rentals in 2004 alone.
- Germany has the leading edge in Europe when it comes to this form of competitive product based largely on own facilities. Stable, sustained competition is unfolding as competitors become less reliant on DTAG's infrastructure.

Many of these trends will accelerate in 2005, mainly because Voice over IP, flat rates, packages and the shift of value added to access services will bring about a substantial change in the telecoms landscape.

The investments, those made and those planned, show that the capital markets, too, have recognised the opportunities afforded by these developments and are assessing framework conditions in the German market positively. The consistent, long term promotion of competition by RegTP is now bearing fruit.

Matthias Kurth

President, Regulatory Authority
for Telecommunications and Posts

Market watch database and methodology

Continuous market watch
RegTP observes developments in the telecoms markets on a continuous basis and presents data in its reports in line with its latest findings.

Database
The figures are based mainly on primary data collected in company surveys. The data are checked for plausibility and clarified with the companies, if necessary. Also used are evaluations of generally accessible publications and RegTP's own analyses.

Every two years, a full-scale survey is carried out for the Activity Report as required under section 121 of the TKG. Every year, this survey is supplemented by a sample of the biggest companies in the market. Under its remit, RegTP has to collect data from companies, and can insist on this, if need be. The markets can be described reliably using company data, not least because market watch is an ongoing activity. Data relating to 2004 are still provisional, as the companies have not yet completed their balance sheets.

Methodology
From the outset, the data have been collated applying a uniform methodology so that sampling statements can be compared. Explanatory comments on indicators and markets are given in RegTP's reports. It is important to bear these definitions in mind (retail markets, wholesale markets) when comparisons with other studies are made.

The market as a whole is described by the telecoms companies' sales. In 2004 the telcos achieved sales totalling **€64.5 billion** (provisional figure).

The focus is on the following markets:

- Fixed network (fixed-line services)
- Mobile telephone services
- Leased lines
- Interconnection (carrier to carrier business)
- Cable TV.

The value of the remaining heading "Other", not looked at more closely, is derived by deducting the figures for the above markets from the total sales figures. The heading "Other" includes sales from data communication and from non-telecoms-related services such as software and content.

The Regulatory Authority as consumer advocate

Telecoms

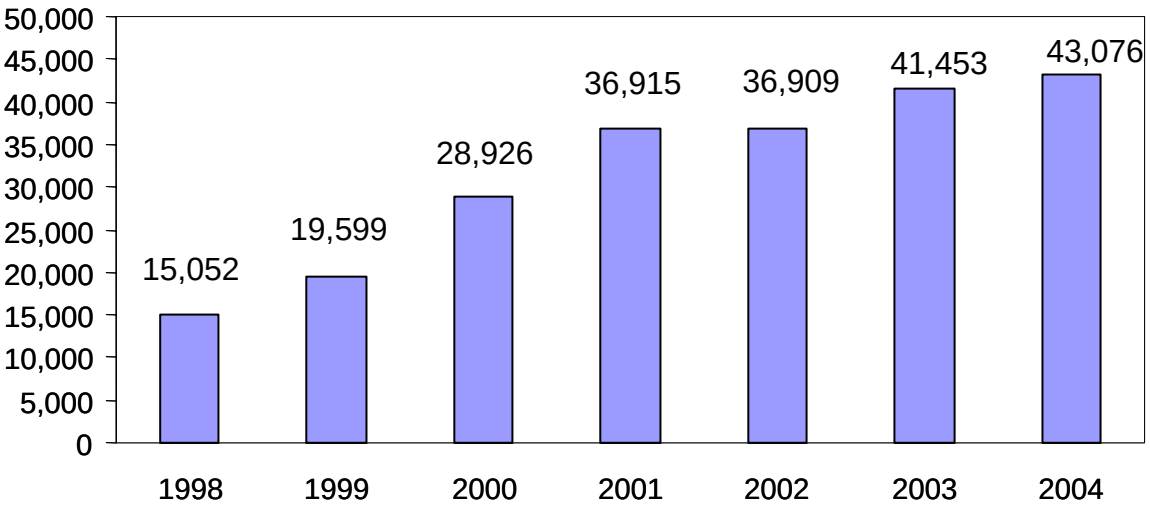
Consumer enquiries

Consumers need independent and competent authorities to which they can turn in order to find relevant information and keep track of the fast-moving field of telecoms.

The Consumer Advice service of the Regulatory Authority for Telecommunications and Posts (RegTP) is the focal point for consumer enquiries. It assists those encountering difficulties with telecoms providers and supplies both general and specific information about the telecoms market. Consumers can find the latest information on RegTP's website.

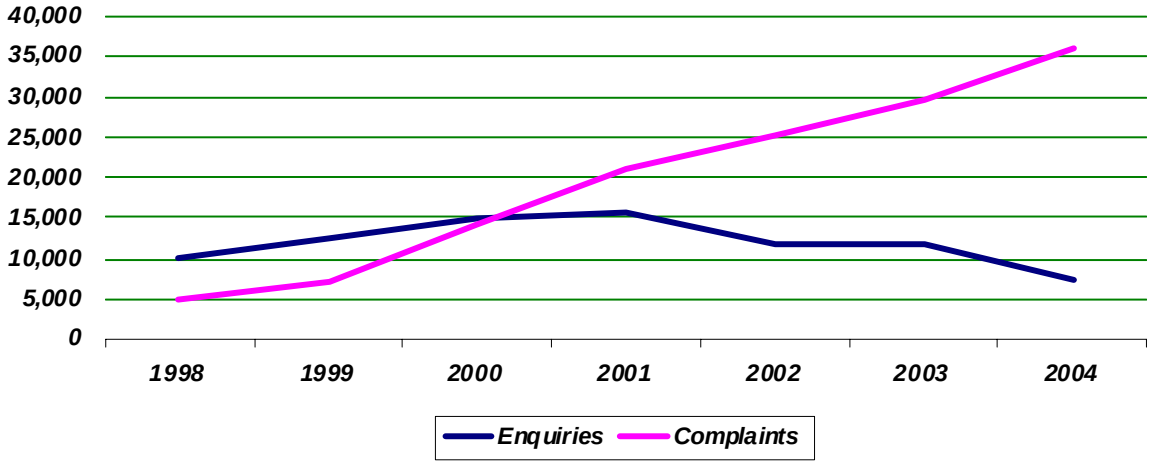
One of the main topics of consumer enquiries and complaints in 2004 was the abuse of 0190/0900 premium rate numbers and how this can be countered. In addition to the basic facts supplied by the Consumer Advice service, RegTP also provided information on specific cases as well as taking steps to stop the abuse and strengthen the rights of consumers (see also page 5).

The Consumer Advice service continues to enjoy a very high level of acceptance among consumers, as the annual increase in the use of the service clearly shows:



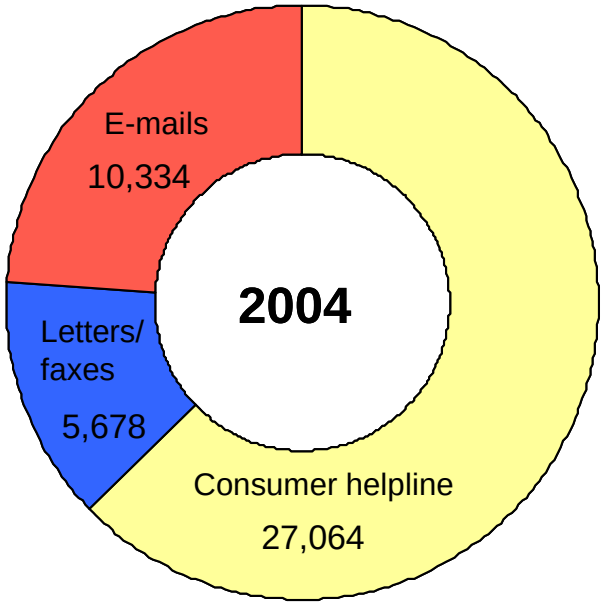
On account of the popularity of the service, representative statistics are available on trends in enquiries and complaints, broken down by provider and content.

An analysis of the annual figures shows a growing gap between the numbers of enquiries and complaints, with the proportion of complaints continuing to rise.



As in the previous year, the increase in complaints on the one hand mirrors the dissatisfaction of consumers with the service provided by their telecoms provider (eg availability by telephone, advice given, response to written enquiries, publication of up-to-date customer information). On the other hand, it is also indicative of the consumers' increased awareness of their rights vis-à-vis their provider.

In 2004, RegTP's Consumer Advice service received **43,076 enquiries and complaints**:



The main issues were:

Charges on telephone bills	30.5%
0190/0900 premium rate services (incl. diallers)	18.7%
Contracts	11.2%
Unsolicited direct marketing (spam)	9.5%
Numbering (allocating, porting and barring numbers)	5.9%
Prices/charges	4.1%
Technical matters (incl. DSL availability)	2.2%
Other	17.9%

The advance of the Internet is accompanied by an increasing number of complaints on the part of customers who consider their **telephone bills** for Internet use to be either **too high or unclear**. A review of these bills often reveals that dialler programmes are the cause of the high costs.

In 2004, the Consumer Advice service received 12,004 enquiries and complaints about **0190/0900 premium rate services**. In addition to general enquiries, it also answered questions about dialler registration and how to identify the owner of a particular number. More details about the steps taken to stem abuse can be found on page 5.

The Consumer Advice service also received enquiries and complaints about **premium SMS**, whereby customers are provided with information and entertainment services in the form of text messages. The charges are then added to their telephone bill. Customers complained in particular about illegal advertising for these services, as well as the difficulty of objecting to the prices charged and terminating subscriptions. One of the main underlying reasons for this was the lack of transparency with regard to the content providers. Discussions between RegTP and the companies involved have resulted in voluntary measures on the part of industry to protect consumers (eg publishing the names of content providers on the Internet). These measures are to be backed up by minimum legal requirements as set forth in the current draft amendment to the Telecommunications Act (TKG).

A large number of consumers continue to believe that RegTP performs a general supervisory function with regard to individual telecoms companies. They therefore turn to RegTP’s Consumer Advice service for help in **contractual matters** that fall outside the specific provisions of the TKG and its associated ordinances.

RegTP is bound by the provisions of the Legal Advice Act (RBerG) in terms of the information it may provide. As a consequence, it may only answer questions that fall within its own area of responsibility, that is post and telecommunications law. Nor is it possible to provide advice on specific matters that are exclusively in the realm of private law.

Complaints are also received about the customer acquisition strategies of certain companies, and the extent to which promises made in advertising are kept. Take preselection for instance, where customers have complained of their telecoms provider being switched without their consent (a procedure known as "slamming"). Once again, however, RegTP has no power to intervene, as these cases are covered by general legislation (for example, the Law Against Unfair Competition).

Unsolicited direct marketing by fax, text messaging or e-mail is another major source of complaints. Following the entry into force of the Second Ordinance Amending the Telecommunications Customer Protection Ordinance (TKV) on 28 August 2002 and of the Premium Rate Services Act (MWDG), it has been noted that numbers with other prefixes, such as 0137 or 0180, as well as with local access codes, are now being advertised.

The main issues covered under **numbering** concern number allocation, number portability when switching providers (in both mobile and fixed networks) and the options for blocking numbers.

The Consumer Advice service regularly receives enquiries and complaints from consumers questioning the legality of the **prices and charges** of individual telecoms providers. The fact that providers' price lists are published in RegTP's Official Gazette leads consumers to believe that the Authority has a general responsibility for regulating such charges. Under section 305a of the German Civil Code (BGB) and section 27 of the TKV, RegTP is obliged to allow service providers to publish general terms and conditions (AGB) and other general customer information in its Official Gazette. The Official Gazette is therefore simply a means of publication and RegTP neither checks nor approves the information submitted by service providers. The service providers bear sole responsibility for the content of their notices.

A growing number of consumers are expressing a desire for high speed Internet access.

Favourable status list

Under section 14 of the TKV, every provider of voice communication services must undertake to provide their customers, upon request, with a standard itemised bill free of charge.

In order to clarify section 14 of the TKV, RegTP has specified the parameters for a standard itemised bill. RegTP further maintains a favourable status list, so as to ensure that as many telecoms providers as possible adhere to this standard. Every provider committing to comply with the parameters can have their name included on the list. The list is updated annually and is published in RegTP's Official Gazette and posted on its website. There are now 46 companies on the list and a further update is planned for the first quarter of 2005.

As the law stands at present, there is no entitlement under section 14 of the TKV to have individual data connections listed. Expanding the scope of the Ordinance to provide this entitlement would be a beneficial step, as highlighted by the large number of bills that lack clarity in this regard.

Combating the abuse of
0190/0900 premium rate numbers

RegTP is tasked with combating the abuse of 0190/0900 premium rate numbers. These numbers offer a quick and easy method of invoicing services (eg helplines) accessed via the telephone or Internet by adding the charges incurred to the phone bill issued by the telco. The provisions set forth in sections 43a and 43b of the TKG will, pursuant to section 152(1) of the TKG, remain applicable even after the amendment of the TKG of 22 June 2004. Their purpose is to bring greater transparency to the range of 0190/0900 premium rate numbers available and to thereby place the consumer in a better legal position. Section 67 of the TKG 2004 further empowers RegTP to intervene in cases where it has reliable information on unlawful use, in particular in order to prevent further abuse taking place. RegTP has various means at its disposal, ranging from issuing a warning to withdrawing the number in question and ordering its deactivation by the network operator. Where it has reliable information on unlawful use, RegTP may also request the bill-issuer not to issue bills for the number concerned. Since 15 August 2003, dial-in programmes using 0190/0900 premium rate numbers have had to be registered with RegTP and, as of 14 December 2003, diallers have only been permitted to use numbers in the 09009 subrange.

Since 1 January 2004, RegTP has dealt with 49,953 consumer enquiries and complaints (submitted in writing and by telephone) at its headquarters and at its sites in Meschede, Neustadt, Detmold, Fulda and Mülheim. It has also received a total of 3,829,298 applications to register diallers. These have been either approved or rejected, unless they were withdrawn by the applicants or – depending on the date they were received and the complexity of the individual case – are still being processed.

Under section 43a(1) of the TKG 1996 in conjunction with section 152(1) of the amended Act, consumers may submit a formal request in order to ascertain the service provider ultimately responsible for a particular 0190 premium rate number. To date, the Mülheim office has provided 8,891 written responses in such cases, while the numbering administration call centre in Fulda has issued 3,714 such notifications pertaining to 0190/0900 numbers. There have also been more general enquiries sent to other parts of the Authority, for instance the Consumer Advice service.

RegTP has examined the detailed customer complaints received and in 322 cases has taken action under section 67 of the TKG. The first sentence of section 67(1) states that RegTP may, under its responsibility for numbering administration, issue orders and take any other suitable measures to secure compliance with the legal provisions and with the conditions it has imposed in connection with the allocation of numbers.

Diallers

Diallers operating in the 09009 subrange must be registered with RegTP. In order to comply, the registering party has to provide a written assurance that the dial-in

programme satisfies the minimum requirements stipulated by RegTP and that there is no possibility of illegal use. Details regarding the registration procedure, the written assurance to be provided as part of the process and the minimum requirements that diallers must satisfy were published in Official Gazettes 16/2003 and 24/2003. An initial draft of a modification to Order 54/2003 was published in the Official Gazette of 11 August 2004 as Communication 259/2004, thereby launching the public consultation. Experience with diallers to date indicates the need to regulate their behaviour, particularly with regard to the provision of pricing information as well as in other points.

Registered diallers are entered into a database, which consumers can access online in the form of a favourable status list. The fact that a dialler is registered with RegTP is not a guarantee of quality. Nevertheless, diallers that are not registered or do not satisfy the minimum requirements may no longer be used. Furthermore, RegTP has revoked the registrations of 431,190 diallers with retroactive effect. This action was taken after consumer complaints and spot checks revealed that, contrary to the declaration of conformity submitted by the applicant, there were many areas in which the minimum requirements had not been fulfilled. One particularly serious case of dialler abuse concerned a rogue auto-dialler that installed itself and dialled a premium rate number without the explicit consent of the user.

By revoking registration with retroactive effect, RegTP also lifted the obligation on consumers to pay for using the diallers in question. This includes the period during which the rogue diallers were initially registered. In addition, RegTP ordered the deactivation of several numbers that had been used to operate unregistered diallers. Twenty-two numbers were deactivated in total. Since 13 May 2004, the individual actions taken by RegTP have been published in a list that can be viewed on the Authority’s website (www.regtp.de).

A total of 1,168,440 diallers had been registered with RegTP by 31 December 2004. Since 1 January 2004, the Authority has received over 22,899 enquiries and complaints on the topic of diallers.

Written and verbal enquiries from consumers	49,953	
Investigative reports	280	
Total applications to register	1,882	for 3,829,298 diallers
Questions from parties obliged to register	1,078	
Deactivated numbers	22	
Withdrawn applications to register	749	for 2,197,513 diallers
Bans on billing	31	

On 14 October 2004, RegTP was awarded the **"Golden Computer 2004"** prize in the category of communication by *Computerbild* magazine readers. There were eight categories in total, with around 150,000 people voting by letter, e-mail, fax and text message for the most innovative products, companies and developments of the past year. The award was a recognition of RegTP’s efforts to combat abuse by diallers.

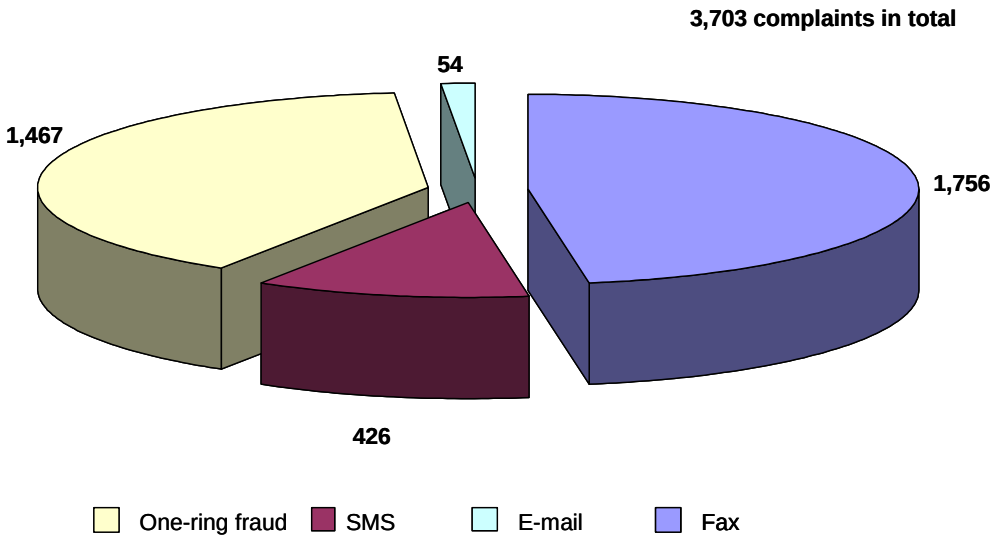
Telephone spam

Complaints about spam (unsolicited direct marketing) were again a major theme for RegTP in the year under review, with the authority receiving a total of 4,927 spam-related complaints up to 31 December 2004. The complaints concerned spam sent by fax, text message and e-mail, as well as "one-ring fraud", whereby the phone rings briefly, prompting the called party to check and return the missed call. Doing so, however, will cause them to dial a 0190/0900 number.

Section 67 of the TKG as amended in 2004 is now broader in scope and permits RegTP to intervene in all instances of call number abuse, not just in the case of 0190/0900 numbers. As a consequence, RegTP has been able to take action against spam (provided that a telephone number has been used), as anyone sending spam is considered to be breaking the law, notably section 1 of the Law Against Unfair Competition (UWG), section 823(1) of the BGB in conjunction with general personal rights, and section 1004 of the BGB. Furthermore, the sender does not normally reveal his identity and also fails to provide numerous other pieces of information required by the Distance Selling Act, thereby infringing section 312c of the BGB in conjunction with article 240 of the Introductory Act to the Civil Code (EGBGB) and section 1 of the ordinance to the Civil Code which sets forth duties to provide information (BGB InfoV). In view of growing media convergence, RegTP does not make a distinction between unsolicited messages sent by fax, e-mail or text message, **as long as the message contains a telephone number.**

Of the 4,927 complaints that RegTP received about spam up to 31 December 2004, 3,703 were linked to numbers in the 0190/0900 range and 1,224 to numbers beginning 0180, 0800, 0700 and 0137. The following chart gives a breakdown of the first group.

Spam linked to 0190/0900 numbers in 2004



In 2004, there were a small number of attempts to bring summary and principal proceedings against RegTP with regard to diallers (eg bans on billing and payment collection owing to the use of illegal diallers, and the revoked registrations of several hundred thousand diallers that failed to satisfy the minimum requirements) and number abuse (telephone spam using premium rate numbers). None of these attempts, however, were successful. The summary proceedings were all won by RegTP in the first instance and the decisions were not legally challenged. Some of the principal proceedings were rejected by court judgment for want of sufficient cause, while others were withdrawn during oral proceedings when it became clear that there was no prospect of winning.

Call centre for numbering administration
The call centre for numbering administration in Fulda is the first place that providers, operators and end customers call if they have questions about numbering administration for premium rate services. The call centre hotline is **01803 686637**. In 2004, it handled a total of **31,365 calls,** with a further **6,466 enquires** sent by e-mail to **nummernverwaltung@regtp.de**.

Dispute resolution
Under section 35 of the TKV, customers claiming that their statutory rights have been infringed may ask RegTP to conciliate in a dispute with their voice telephony or public telecoms network access provider. It was for this purpose that RegTP set up a dispute resolution service in June 1999, in line with the amended regulations published in its Official Gazette of 14 November 2001 as Communication 22/2001 in conjunction with section 35(1) of the TKV.

Accordingly, the procedure may be invoked when the applicant can assert violation of their statutory rights, when judicial proceedings with the same subject matter are not pending, when dispute resolution on the same matter is not taking place or has not taken place, when an attempt to reach agreement with the defendant has been made beforehand, when the defendant has not cited limitation of action to the applicant and when clarification of a fundamental issue is not compromised.

As a rule, dispute resolution by RegTP is carried out in writing, in line with its rules of procedure. It is voluntary. It follows, therefore, that the procedure is regarded as closed as soon as one of the parties refuses to cooperate.

The aim is amicable agreement. It fails if the applicant withdraws their application, if the defendant refuses to agree to conciliation or if the proposal made is not accepted. In deciding to invoke the process, the applicant must bear in mind that it is an out of court dispute resolution procedure.

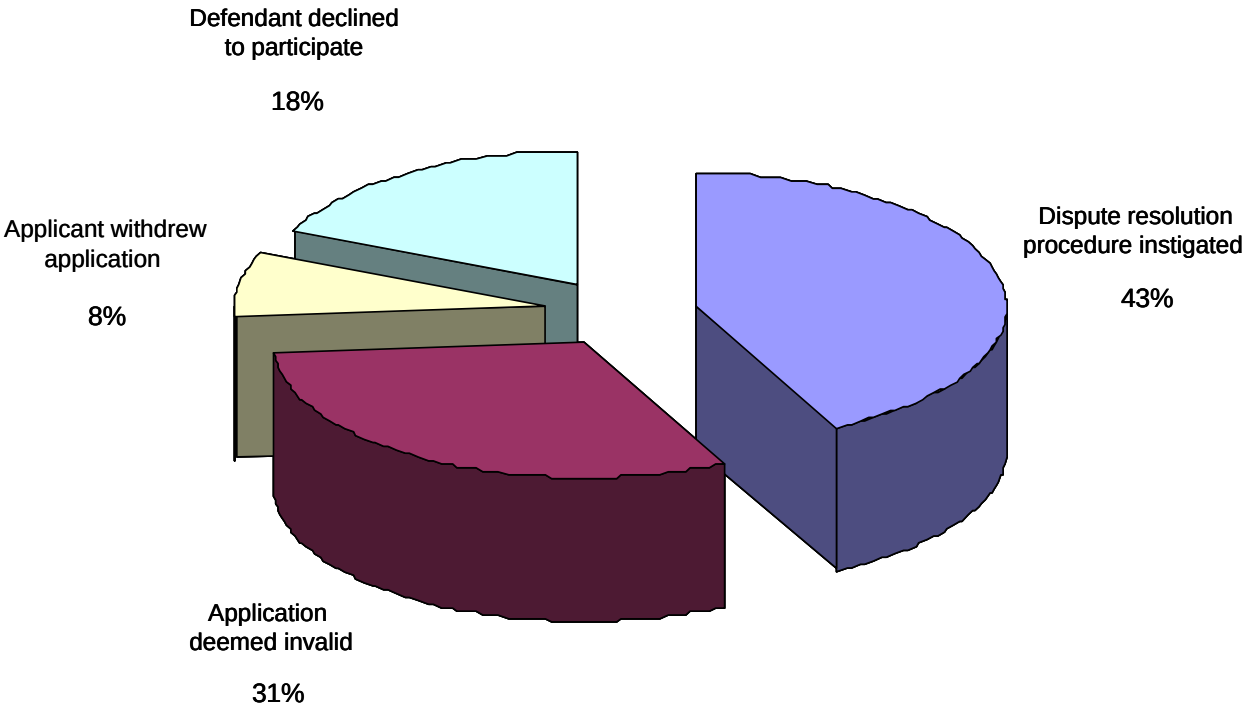
RegTP's service assesses both parties' statements on the case, including associated documentary evidence, as well as declarations regarding the legal position. It then works out a proposal based on the parties' positions and aimed at a compromise between the conflicting demands. The outcome thus fundamentally depends on the willingness of the two sides themselves to clarify the facts and accept a compromise. Under section 15a(3) of the Code of Civil Procedure Introduction Act (ZPOEG), RegTP's service is classified as "another conciliation body". This means that RegTP's service – except in the case of implementation by a federal state of section 15a of the ZPOEG – can in pecuniary disputes before the local courts when the value of the

matter in dispute does not exceed €750, take the place of the mandatory procedure before a conciliation body set up or recognised by the state administration of justice. It should be remembered that a settlement made through the agency of RegTP's service is not an executory title within the meaning of section 794 of the Code of Civil Procedure (ZPO).

There is a minimum fee of €25 for this service. The fee increases in line with the value of the subject matter. The dispute resolution service determines the costs as appears fair, taking into account the findings of fact. In other respects, sections 8 to 21 of the Administrative Expenses Act apply accordingly.

In 2004, there were 245 requests to resolve disputes and in 43 percent of the cases it was possible to instigate the procedure. In eight percent of the cases, the application was withdrawn after RegTP commented on the case or notified the applicant of the legal requirements and the rules of procedure. In around 18 percent of the cases, defendants exercised their right not to take part in the procedure. Finally, in 31 percent of the cases, RegTP was forced to reject the application after determining that, within the meaning of the TKV, the customer's rights had not been infringed.

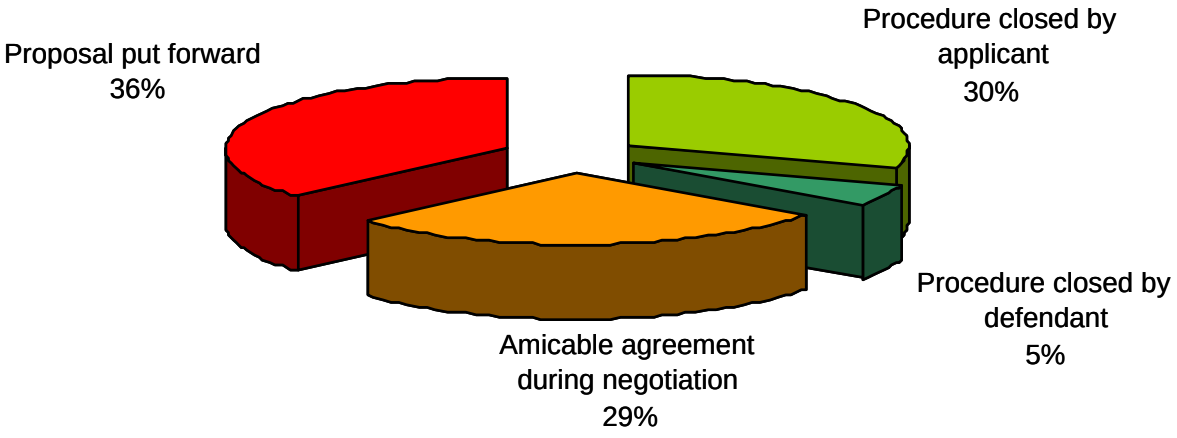
Applications for dispute resolution



Compared to the previous year, the number of dispute resolution procedures has remained stable. RegTP sees this as a signal that the procedure is now an established route for consumers wishing to reach an out-of-court settlement in disputes with their telecoms providers. Efforts continue to be made to improve the efficiency of this service.

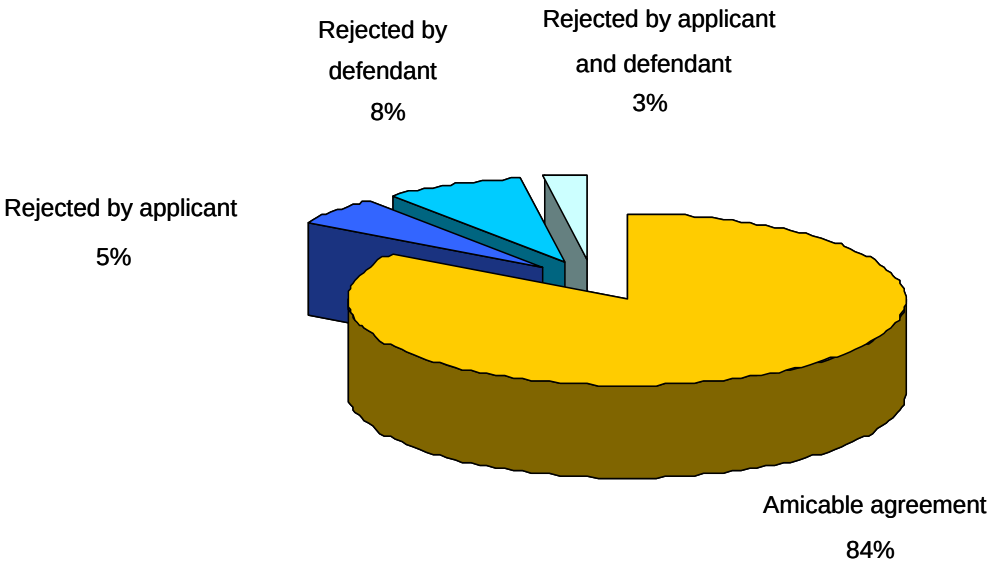
In 65 percent of the cases where procedures were instigated, it proved possible to either reach an amicable agreement in the course of negotiations or to put forward a proposal. In 35 percent of the cases, defendants either exercised their right not to take part in the procedure or applicants withdrew their application.

Dispute resolution procedures



In the majority of cases, the proposals put forward by RegTP were accepted by both parties:

Proposals for dispute resolution



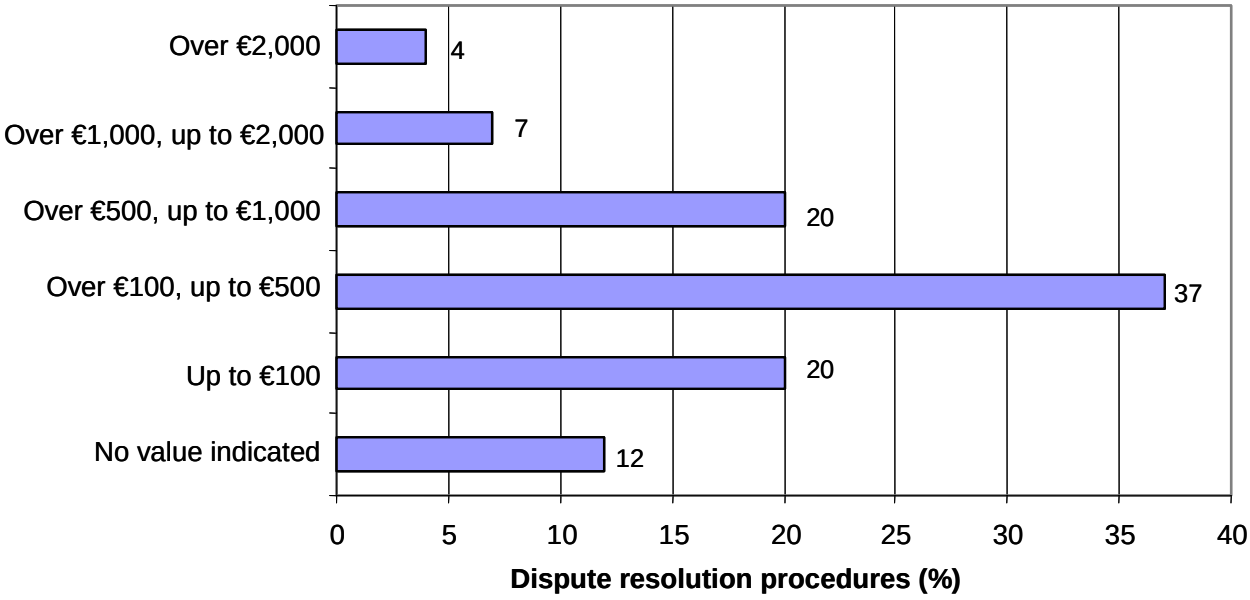
One of the reasons for the high success rate in terms of the number of proposals adopted is the increased willingness of companies to contribute to a successful outcome. Companies involved in this procedure are notified by RegTP and informed of the relevant facts and conclusions. This is similar to what happens with regard to the evaluation of consumer information.

The requests for dispute resolution cited the same grievances as last year.

In the main, these were:

- Unclear or disputed charges on telephone bills.
- The quality of telecoms and customer services.
- Differences of opinion between consumers and providers on charges billed, the use of premium rate services and the use and duration of use of online services.

Most of the disputes concerned sums of between €100 and €1,000.



RegTP's dispute resolution service forms part of *BundOnline 2005*, a federal government initiative to make suitable administrative services available on the Internet by 2005. The aim is to provide a modern, user-friendly service by making it possible to submit and process applications electronically.

To meet these requirements, work has now begun on a complete restructuring of the IT processes used to provide the dispute resolution service.

In order that "Dispute resolution pursuant to section 35 of the TKV" can become a viable online service, information on the different options open to consumers and on how to submit an application has to be made available. In fact, consumers can already find dedicated, German-language web pages on RegTP's website. These can be accessed from the RegTP homepage by clicking on "*Verbraucherservice*" (consumer services) and then "*Schlichtung*" (dispute resolution). Here users will find information on the process of dispute resolution, the rules of procedure, a guide to submitting an application and the application form itself.

Universal services

Under sections 80 and 81 of the TKG 2004, RegTP only commits an enterprise to provide a universal service if gaps in supply are identified in the relevant product and geographic market, or if there is reason to fear that such gaps in supply will occur. To date, this has not been the case. However, if Deutsche Telekom AG (DTAG) intends not to offer universal services as specified in section 78(2) of the TKG to the full extent or to offer them under less favourable conditions than those specified in the Act, it is required by section 150(9) of the TKG to notify RegTP of such intentions one year prior to their taking effect.

Thus RegTP's activity in respect of universal service is in accord with the EU's universal service philosophy to let market forces work and to intervene solely in the event of a deficit becoming apparent. RegTP was in many instances able to help end customers in stating their case for fixed network access (telephone line) and for correct entry of their details in data records used by public directories and information services.

Further RegTP activities concerned the service "Provision of public pay telephones". In light of the full fixed-line coverage and the fact that there are now more than 71 million mobile users, DTAG, local authority associations and RegTP have agreed to adapt to the changed usage patterns and to the low demand for public pay telephones by introducing a new structural concept to ensure coverage even at uneconomic locations. The intention is to roll out so-called "basic telephones" at such locations, thereby continuing to provide a telephone service yet eliminating some of the more sophisticated features. DTAG has assured RegTP that it still intends to fulfil its mandate of providing public telephones. Therefore, in order to continue serving sparsely frequented locations across the country while keeping its own outlay within reasonable limits and ensuring that prices are affordable for users, it has launched the "basic telephone" project. This is supported by a dedicated advisory board led by the Chairman of the Inter-State Working Group and including representatives from RegTP, leading local authority associations, consumer associations and WIK Consult. In its 39th meeting on 3 May 2004, RegTP's Advisory Council expressly reaffirmed its support for this approach. It, too, is actively overseeing the pilot project.

The aim of the pilot project is to test the suitability of the basic telephone as a low-cost device and to see how well it is received by users. It includes a total of 15,000 basic telephones, which are designed to replace conventional pay telephones at little-used locations throughout Germany. All existing public telephone locations will remain in service during the trial. During the initial implementation phase, there was close coordination with the relevant local authorities in selecting and setting up each of the pilot locations, which were equipped with basic telephones in autumn 2004. Then began a one-year pilot phase, during which all relevant data is being recorded and evaluated for each individual location. Once this phase is complete and the pilot project has been evaluated, a decision will be taken at the end of 2005 as to whether the basic telephone is acceptable and can be installed at locations which are used extremely infrequently. To date, no user complaints have been reported, apart from a very small number of people who were unhappy with the reduced features available.

Independently of this, RegTP’s criteria to ensure nationwide provision of public telephones (see Communication 136/2002 in Official Gazette 4/2002 of

6 March 2002), supplemented by the criterion of wireless coverage as proposed by RegTP's Advisory Council, continue to apply.

Postal sector

Citizens' inputs and consumer protection

In 2004 RegTP received 1,410 written citizens' inputs, complaints and enquiries relating to the postal sector.

Citizens' inputs, complaint and enquiry statistics

1 January – 31 December 2004	Inputs	%
Access to postal services (including letter boxes, auxiliary offices, agencies)	335	23.8
Delivery of postal items	231	16.4
Complaints handling by provider	155	11.0
Loss of items	144	10.2
Late/delayed delivery	58	4.1
Damaged items	45	3.2
Address changes	36	2.6
Behaviour and competence of provider's staff	31	2.2
Cross-border postal items	10	0.7
Posting of items	9	0.6
Other (including Postal Service Ordinance and financial services)	356	25.2
Total	**1,410**	**100.0**

In addition, RegTP received just under 1,000 identically worded e-mail messages from consumers complaining about Deutsche Post AG (DPAG)'s changed conditions for sending gramophone records.

The complaints related to actual or perceived deficiencies in universal service provision under the Postal Universal Service Ordinance (PUDLV) and the provision of postal services under the Postal Services Ordinance (PDLV). Yet a large number of complaints concerned matters unrelated to the Postal Act (PostG) (eg financial services provided by DPAG).

In cases where, while processing the inputs, actual deficits were established, RegTP endeavoured to ensure that these were eliminated. In 2004, once again, it was not required to issue formal responses such as the imposition of fines. Having been requested by RegTP to do so, in general DPAG addressed service deficits without delay. In several cases a contributing factor may have been the mention of possible sanctions.

However, this approach was not taken in the case of the above mentioned 1,000 or so complaints concerning DPAG's changed conditions for sending gramophone records, as this was clearly not a deficit in the provision of universal services.

Conciliation

The PDLV of 24 August 2001 regulates the specific rights and obligations of postal service providers and of those who avail themselves of or seek to utilise these services under contract as end customers.

The PDLV also provides for a conciliation process (section 10). In the case of, above all, the loss or theft of or damage to postal items, a postal service provider's

customers can appeal to RegTP for the purposes of conciliation. However, this requires the customer to have attempted, unsuccessfully, to clarify the matter directly with the provider beforehand.

The procedure aims to achieve an amicable settlement between the parties, the exact nature of which RegTP can propose, similar to a conciliation process under civil law. The proceedings end with a settlement between the parties or by RegTP stating that no settlement has been achieved.

However, to date the conciliation option has only rarely been invoked. In 2004, seven conciliation proceedings were introduced. Two were successfully settled; two failed, as the plaintiffs withdrew; three are still pending.

Universal service

Continued development of provisions governing universal service

The experiences made with the PUDLV and the evaluation of citizens' inputs in 2003 led RegTP, in line with section 47 of the Postal Act, to recommend in its 2002/2003 Activity Report an amendment regarding which postal services are deemed universal services within the meaning of section 11 of the Postal Act. For further details on RegTP's recommendations, please refer to its 2002/2003 Activity Report, page 271ff (available also on RegTP's web site at www.regtp.de ⇨ *Aktuelles / Presse*.

The federal government chose not to follow these recommendations and formally amend the wording of the PUDLV. This was possible as in early 2004, DPAG announced and subsequently issued on 2 April 2004 a voluntary commitment concerning the definition and scope of its universal service obligation. The voluntary commitment took up the majority of RegTP's recommendations, a fact warmly welcomed by the Bundestag and the federal government. DPAG's Voluntary Commitment can be found in the Bundestag Printed Paper 15/3186, 25 May 2004 and in RegTP's Official Gazette dated 26 January 2005 (Communication 28/2005).

Monitoring of compliance with universal service obligations

The Postal Act empowers and commissions RegTP to take decisions on compliance with the provisions of the PUDLV. To do so, RegTP requires information from DPAG in particular concerning its network of auxiliary offices and letter boxes.

As early as 2003 RegTP and DPAG agreed on an information and reporting system that would supply information on stationary facilities and the letter box network. This system underwent further development in 2004 and was extended beyond the PUDLV to include DPAG's voluntary commitment. In addition, the number of random checks performed by RegTP was increased.

Stationary facilities

Under section 2(1) and section 3 of the Postal Universal Service Ordinance at least 12,000 stationary facilities must be available nationwide where agreements concerning letter and parcel mail services may be concluded and implemented, and of which at least 5,000 must be staffed with company employees.

RegTP verifies compliance with this requirement on the basis of the PUDLV which states that stationary facilities must be **in place**. In addition, in verifying compliance it takes into account DPAG’s voluntary commitment of 2 April 2004 in which DPAG

expressly states that in the context of RegTP's verification and compliance activities, it would treat the elements of its commitment as if they were PUDLV provisions.

Since the Postal Act (and the PUDLV) came into force, the number of DPAG's stationary facilities has developed as follows:

As of	**Stationary facilities overall**	**Self-run auxiliary offices**	**For information purposes: agencies**
31.12.97	15,331	10,095	*5,236*
31.12.98	14,482	7,946	*6,536*
31.12.99	13,948	5,956	*7,992*
31.12.00	13,663	5,590	*8,073*
31.12.01	12,818	5,331	*7,487*
31.12.02	12,683	5,030	*7,653*
31.12.03	13,514	5,513	*8,001*
31.12.04	13,019	5,379	*7,640*
PUDLV specification	at least **12,000**	at least **5,000**	Source: DPAG

To this extent DPAG has complied with the specifications of the Postal Universal Service Ordinance, hence fulfilling its universal service obligations.

Among the self-run auxiliary offices are those stationary facilities that are staffed by persons in the employment of DPAG or one of its subsidiaries, and whose staff costs are attributed to DPAG or one of its subsidiaries. This is the case for Deutsche Post auxiliary offices and the so-called Post Service outlets. In this respect DPAG has assured that the Post Service outlets will meet all quality requirements of the PUDLV, specifically the required range of services and the opening hours, which must correspond to demand.

According to the above table, between year-end 2003 and year-end 2004 DPAG reduced the number of stationary facilities by 495. This change represents a 'balance' of 896 closed-down stationary facilities whose continued existence was not required under the PUDLV and Deutsche Post AG's commitment of April 2004, and the establishment of 401 new stationary facilities as a result of the commitment.

Letter boxes

Unlike the number of stationary facilities, the PUDLV makes no reference to the number of letter boxes. It merely refers to the distance between the boxes, stating that there must be a sufficient number of letter boxes to ensure that customers in urban residential areas will not, as a rule, need to cover a distance of more than 1,000 metres to reach one.

In its April 2004 voluntary commitment DPAG undertakes to maintain around 108,000 letter boxes nationwide until the expiry of the exclusive licence. At the end of 2004 DPAG maintained approximately 110,000 letter boxes. DPAG hence exceeds the quota to which it committed itself.

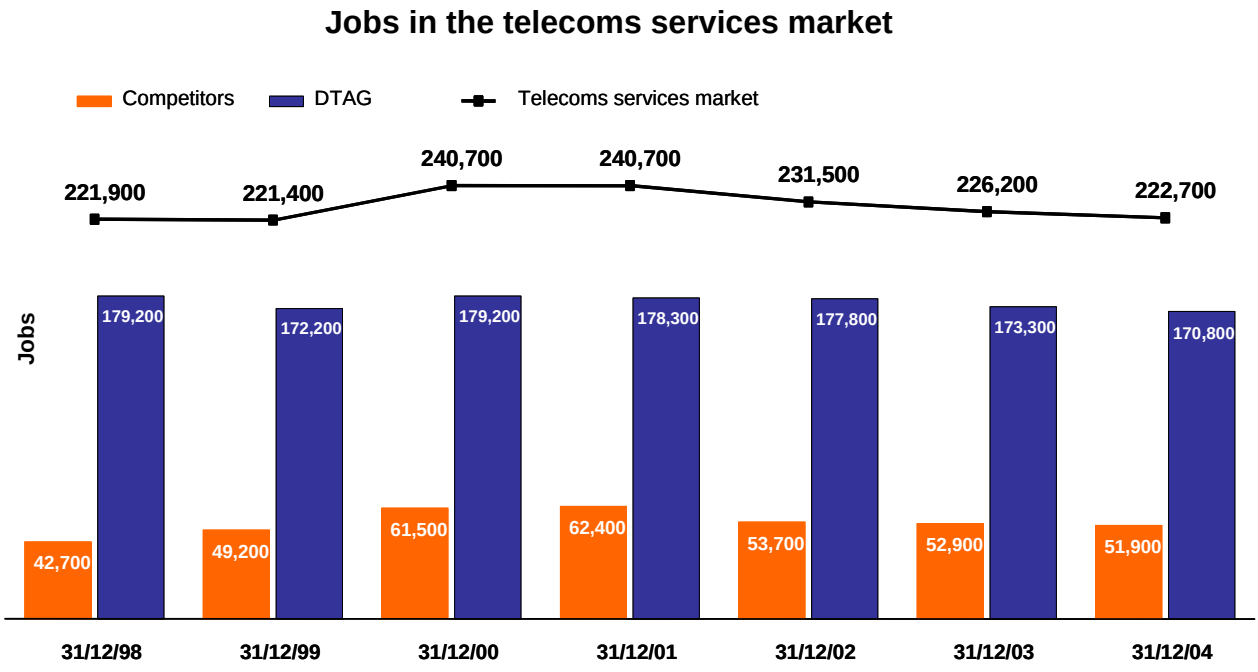
Moreover, DPAG has committed itself to undertaking suitable measures in order to ensure that letter boxes are not emptied before the last indicated collection time. RegTP is not in receipt of any information (eg complaints) that would suggest DPAG is not fulfilling its obligations.

Universal service provision
Looking back at 2004 RegTP is able to state that universal services in Germany are being **appropriately and adequately** provided within the meaning of the Postal Act. The federal government clearly concurs. In its Consumer Policy Report for 2004 (*Verbraucherpolitischer Bericht*, Bundestag Printed Paper 15/4499) it referred to telecommunications but not to postal matters, indicating that it currently recognises no need for discussion of, and certainly no need for action on, consumer protection issues. The Federation of German Consumer Organisations (*Verbraucherzentrale Bundesverband*), too, makes no reference to postal issues in its 2003/2004 Annual Report.

Employment trends

Jobs in the telecoms market

The number of people working in the telecoms services market fell by 3,500 (1.6 percent) to 222,700 at the end of 2004.



DTAG has reduced its workforce in Germany by 2,500 to 170,800, while its competitors have cut 1,000 jobs, leaving a total of 51,900.

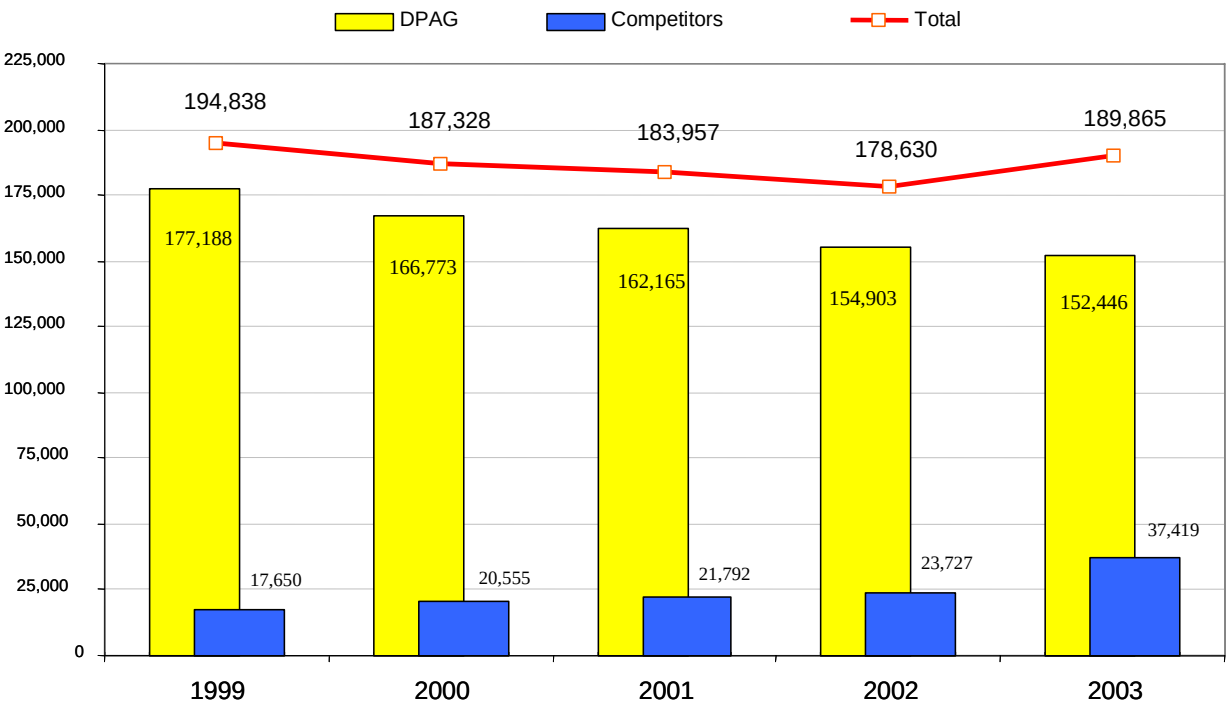
In absolute terms, more jobs were lost in the fixed network market (including cable TV) than in the mobile market during the year under review. Fixed network operators and service providers shed 2,700 employees, compared to the 800 jobs cut by mobile companies. In all, 193,400 persons were employed in the fixed network

market and 29,300 in the mobile market. If DTAG is left out of the equation, these figures drop to 30,600 and 21,300 respectively.

Jobs in the postal market

According to providers' indications, on an annual average in 2003 189,865 employees worked in the licensed area (conveyance of letter items up to 1,000g) on a full/part-time and insignificant employment basis. Of these, 37,419 were employed by new licensees. The figures for 2004 will be published in the 2005 market survey.

Workforce development in the licensed area



Employees in the licensed area (2003 annual average)

2003 (annual average)	**DPAG**	**Licen-sees**	**Others**[1)]
Full-time employees (working 35 hours or more per week)	101,464	7,068	51
Part-time employees (counted as neither full-time employees nor persons in insignificant employment)	49,896	8,485	1
Persons in insignificant employment / 'miniiobs'	1,086	21,757	57
Total	152,43	37,310	109

[1] Holders of licences for the conveyance of large mailings up to 100g that were issued prior to the enactment of the Postal Act and will expire at the latest at year-end 2007 (these contain no stipulations regarding employment)

Since 1998 the new licensees have created more than 37,000 new jobs, ie jobs that were not transferred from Deutsche Post AG. Without these licensees these jobs would not exist, and their employees might otherwise be unemployed. In this sense the licensees are making a not inconsiderable contribution to relieving the burden on the labour market.

Over the last three to four years, however, discontinuations and insolvencies in the licensed area have led to the loss of up to 4,000 jobs. When asked to justify these discontinuations and insolvencies, the licensees mainly cited the unstable legal framework in the licensed area, DPAG's litigation practices, and the extension of the exclusive licence.

Breakdown of employees (excluding DPAG) by federal state

Federal state	**Full time employees**	**Part time employees**	**Persons in insignificant employment**	**Total**
Baden-Württemberg	316	411	762	1.489
Bavaria	275	164	1,637	2.076
Berlin	777	3,286	1,989	6.052
Brandenburg	192	146	1,531	1.869
Bremen	2	2	6	10
Hamburg*)	2,445	1,039	132	3.616
Hesse	264	225	172	661
Mecklenburg-Western Pomerania	211	366	4,748	5.325
Lower Saxony	277	344	1,162	1.783
North-Rhine Westphalia	1,215	602	1,754	3.571
Rhineland-Palatinate	107	310	114	531
Saarland	50	190	554	794
Saxony	398	361	3,562	4.321
Saxony-Anhalt	205	895	2,323	3.423
Schleswig-Holstein	63	62	329	454
Thuringia	322	83	1,039	1.444
Total	**7,119**	**8,486**	**21,814**	**37.419**

*) Figures for Hamburg include the employees of a major provider with nationwide operations and decentralised jobs.

Most of these jobs are not located in urban areas but in structurally weaker regions. The overall share of employees accounted for by the licensees' employees is considerably higher in the new federal states in the east of the country, indicating that the opportunities afforded by the Postal Act tend to be seized more often by entrepreneurs there.

DPAG is continually cutting jobs in the letter sector, having eliminated the equivalent of 20,000 full-time jobs between the end of 1997 and the end of 2003. These cuts are not matched by drops in sales or revenue. The number of letter items conveyed has risen by more than ten percent, while revenue has remained at approximately the same level.

Conversely, since 1998 new licensees have created around 37,400 jobs, of which some 7,100 were full-time and just under 8,500 were part-time.

Workforce development among licensees (2000 – 2003)

	2000	2001	2002	2003
Full time employees	4,535	5,113	5,485	7,119
Part time employees	5,005	3,461	4,042	8,486
Persons in insignificant employment	11,015	13,218	14,200	21,814
Total	20,555	21,792	23,727	37,419

In this context, it is remarkable that licensees have created a disproportionately high number of full- and part-time jobs. In 2003 their total share in revenue generated in the licensed area was just under four percent (proportion of sales approx 3.7 percent), yet they employed as many as 6.6 percent of full-time and 14.5 percent of part-time employees in this area.

Telecoms market watch

Growth in the telecoms services market

Under market watch, RegTP keeps a constant check on the number of companies, their revenues, workforce and investment. It also monitors trends in subscriber numbers, prices and traffic volumes.

Growth in revenues[2]

According to the latest information, revenues in the telecoms services market totalled around €64.5 billion in 2004, up approximately two percent on the previous year[3].

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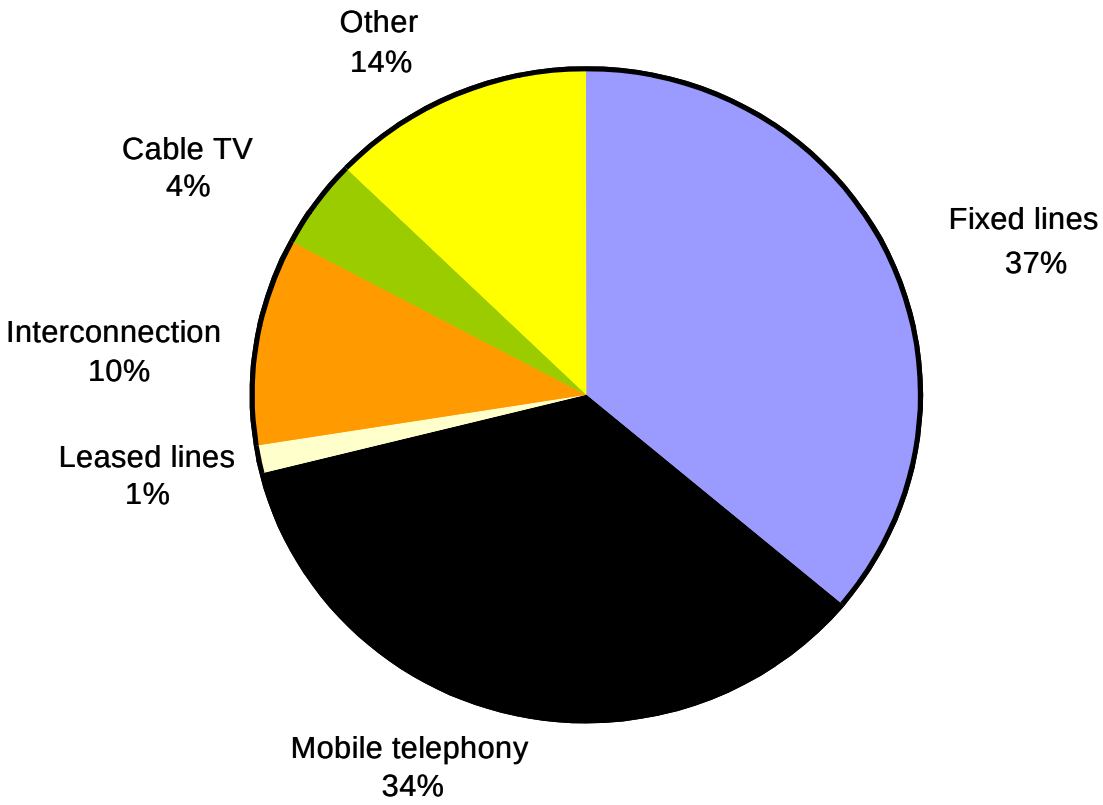
[2] The chart shows the cumulative revenues of telcos. The total revenues are broken down into the following segments: Fixed lines, Mobile telephony, Leased lines, Interconnection, Cable TV and Other. The market for fixed line services includes all the services network operators provide to end users and resellers, in particular, provision of the line and all types of switched call. Calls to premium rate numbers and Internet access calls include services that may go beyond call set up (information content). Revenues for resellers of voice services are likewise included, as are the revenues of Internet Service Providers (ISPs) that are not network operators. Mobile telephone service revenues comprise the revenues generated by both network operators and service providers. The figures for mobile telephone service and fixed line service do not include revenues for interconnect services. Interconnect services are grouped in the Carrier Business segment. Grouped under this heading are connection and access services that companies provide in order to interconnect their networks. They include the shared use of buildings (co-location), local loop rental, and collection and preselection services. Leased lines feature in a segment of their own. The cable television segment includes the revenues earned by the cable operators from connection and programme feed charges. The segment "Other" subsumes all such services as cannot be allocated to any of the above. In the main, these are data services, corporate network services and broadcasting services, as well as trunked radio, mobile data and paging services. The heading "Other" may also include software services and other non-telecoms-specific services provided by a telecoms company or group.

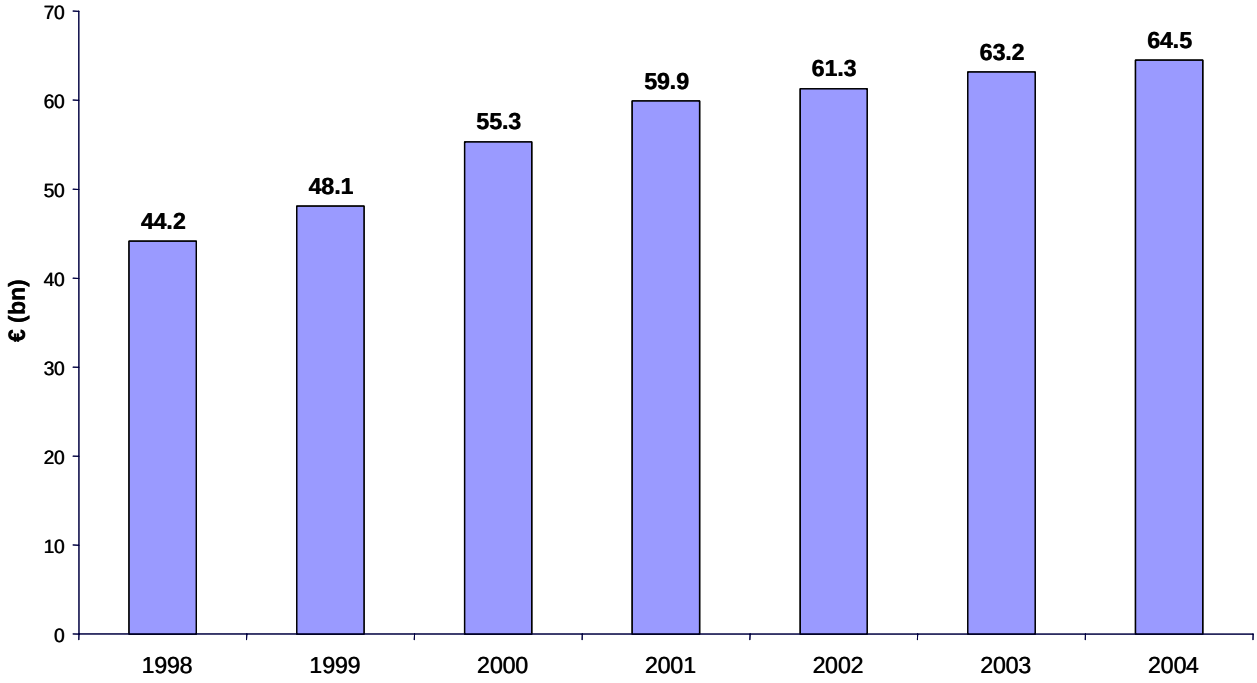
[3] The figure for the previous year has been adjusted in line with more recent information. Market figures for 2003 and 2004 are provisional and will be updated in the 2004/2005 activity report on the basis of a more comprehensive survey.

Spread of telecoms revenues in 2004



Total revenues: €64.5 billion

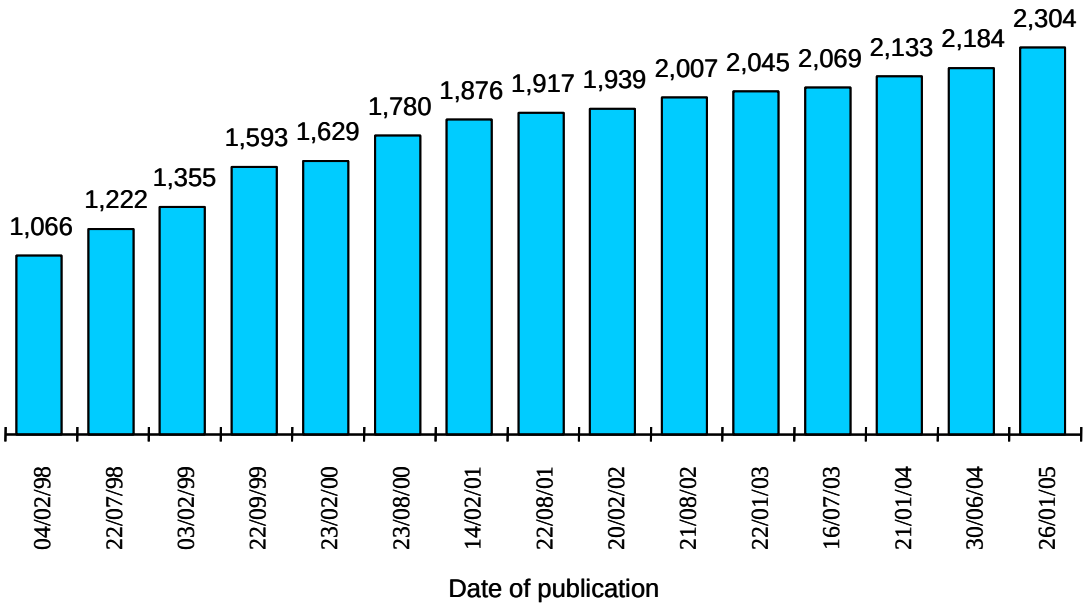
Year-on-year revenues of telecoms companies 1998 – 2004



Investments
Provisional estimates show that telecoms companies invested a total of around €4.4 billion in fixed assets in 2004. Of this, approximately €2.3 billion went into mobile networks and €2.1 billion into fixed networks.

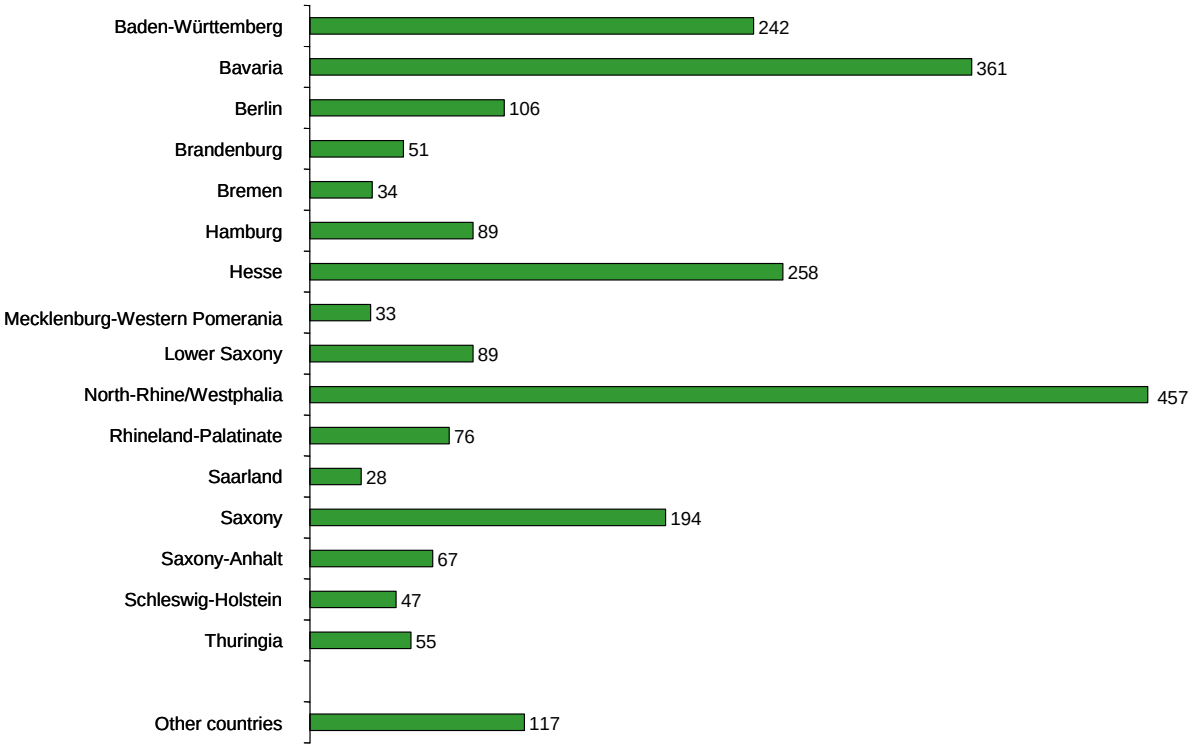
Number of providers and service trends
At the start of 2005 there were 2,304 companies registered with RegTP.

Growth in the number of telecoms service providers



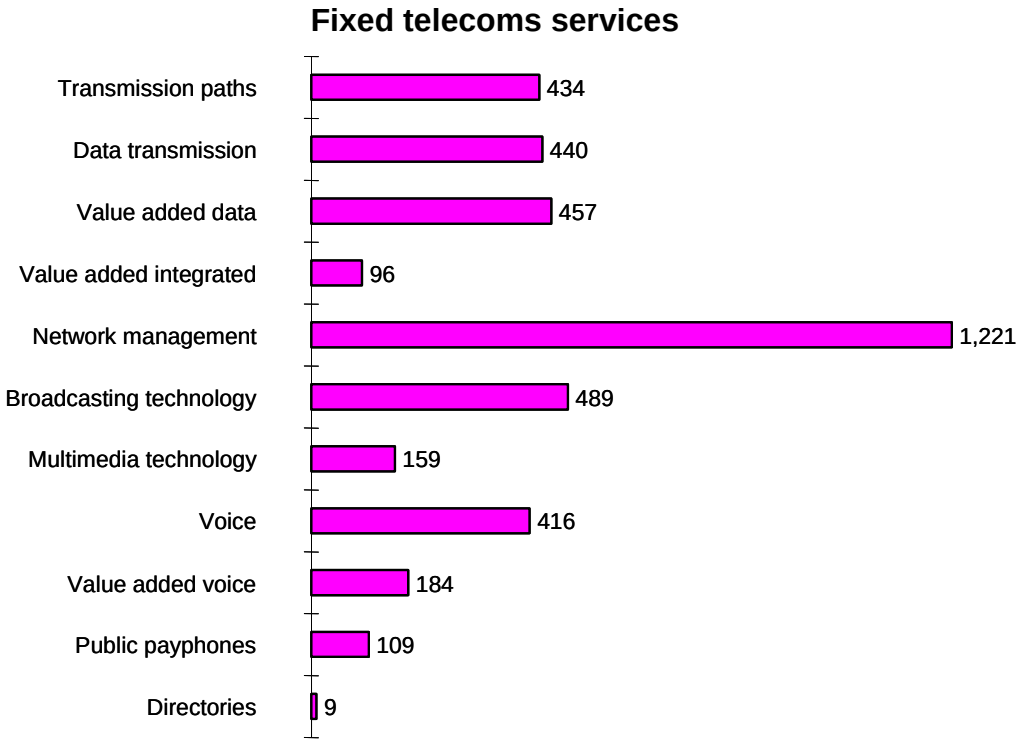
The following map and chart show the federal state in which providers have their headquarters. Some operate nationally, while others have regional strategies.

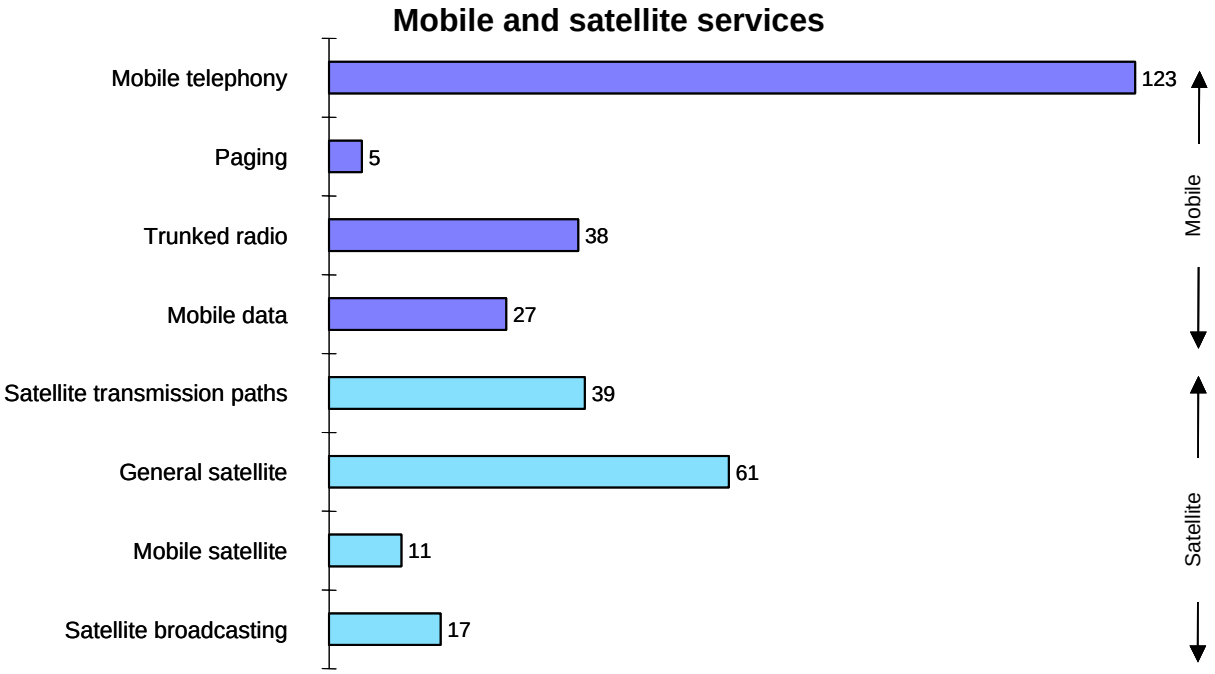
Regional breakdown of telecoms service providers



The most common services are those devoted to network management. Of these, the 911 Internet access services offered by Internet Service Providers, or ISPs, are the largest single group and also the category in which most new providers were registered. At the start of 2005, 416 companies were providing voice services in the fixed network, of which around 100 were offering call by call, preselection or direct access over their own core and access networks. This means that most companies buy wholesale products from network operators and trade as resellers or providers of premium rate services.

The following chart shows the number of services in each category:





Growth in fixed lines

Narrowband access

At the end of 2004 the number of telephone channels in Germany totalled 54.55 million[4]. This figure comprised 26.98 million analogue lines[5] (public telephones and cable telephony included), 11.94 million basic rate ISDN lines[6] and 123,000 primary rate ISDN lines[7]. The total number of telephone channels is arrived at by counting one channel for an analogue line, two for a basic rate ISDN line and 30 for a primary rate ISDN line.

There were also around 6.7 million DSL lines[8] in operation.

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[4] The telephone channel is a generic term for a communication pathway. Analogue, basic rate ISDN and primary rate ISDN lines each provide a different number of such channels, the sum of which gives an indication of total capacity. Public telephones and cable modems used for cable telephony are included in the total. Both the competitors' and DTAG's figures include a small proportion for their own requirements.

[5] Traditional telephone line: voice channel with 3.1 kHz bandwidth.

[6] Basic rate ISDN (Integrated Services Digital Network): two independent voice channels, each operating at 64 kbit/s.

[7] Primary rate ISDN: thirty independent voice channels, each operating at 64 kbit/s.

[8] DSL (Digital Subscriber Line) is a high speed connection provided on the copper telephone line from the exchange to the end customer. Variants such as ADSL, SDSL and HDSL are commercially available. They differ in terms of transmission speed: ADSL (Asymmetric DSL) offers different speeds in the two directions (upstream and downstream), whereas SDSL (Symmetric DSL) and HDSL (High Data Rate DSL) provide the same speed both ways. Unlike ADSL, SDSL and HDSL do not support the parallel use of telephone services in the baseband.

Telephone channels: DTAG and competitors

	1998	1999	2000	2001	2002	2003	2004
Competitors							
Total (million)	**0.16**	**0.40**	**0.86**	**1.62**	**2.27**	**3.12**	**4.14**
Analogue	15%	22%	17%	12%	11%	10%	12%
ISDN	85%	78%	83%	88%	89%	90%	88%
Number of providers	21	40	55	61	64	65	68
DTAG							
Total (million)	**46.37**	**47.81**	**49.36**	**50.83**	**51.51**	**51.23**	**50.41**
Analogue	78%	72%	65%	60%	56%	53.7%	52.6%
ISDN	22%	28%	35%	40%	44%	46.3%	47.4%
Total							
Total (million)	**46.53**	**48.21**	**50.22**	**52.45**	**53.78**	**54.35**	**54.55**
Competitors	0.3%	0.8%	1.7%	3.1%	4.2%	5.7%	7.6%
DTAG	99.7%	99.2%	98.3%	96.9%	95.8%	94.3%	92.4%

Figures include public telephones, cable telephony and providers' own requirements

Alternative operators increased their market share to 7.6 percent in the year under review and now provide 4.14 million telephone channels in total. Across the country, they accounted for 1.8 percent of analogue lines, 12.1 percent of basic rate ISDN lines and 21.1 percent of primary rate ISDN lines.

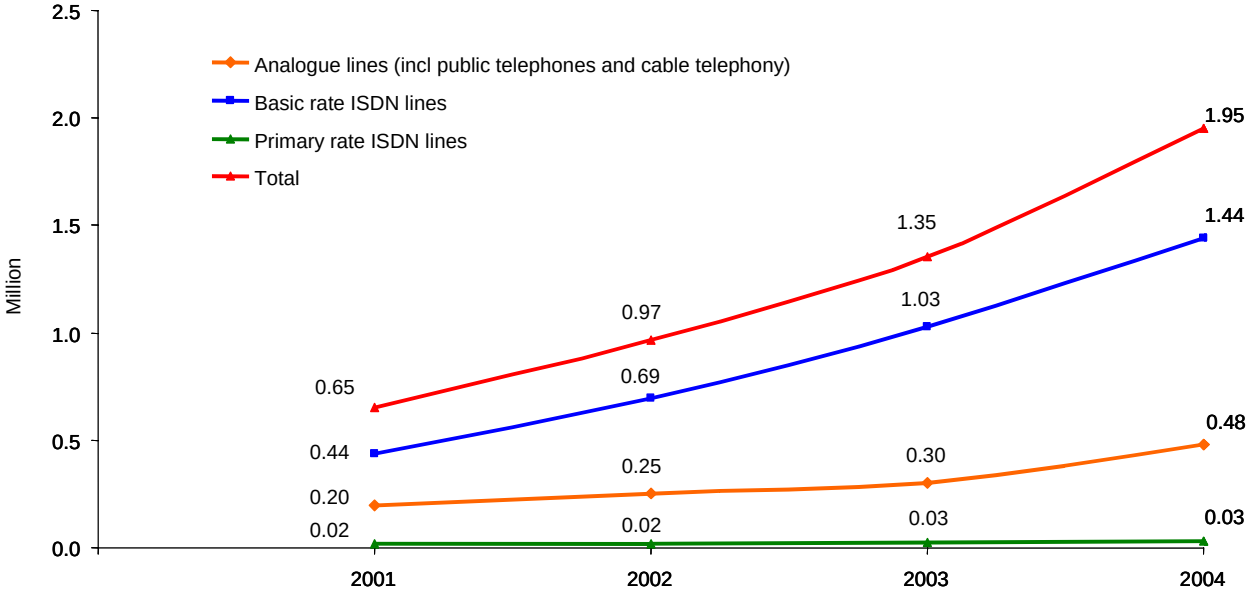
Telephone lines showing competitors' market share

	2003			2004		
	Total (million)	Competitors		Total (million)	Competitors	
		Million	%		Million	%
Analogue lines (excluding public telephones, including cable telephony)	27.69	0.296	1.1%	26.87	0.477	1.8%
Basic rate ISDN lines	11.43	1.028	9.0%	11.94	1.441	12.1%
Primary rate ISDN lines	0.123	0.0256	20.8%	0.123	0.0260	21.1%
Public telephones	0.107	0.0036	3.4%	0.106	0.0039	3.7%
Total number of lines	39.35	1.35	3.4%	39.04	1.95	5.0%
Total number of channels	54.35	3.12	5.7%	54.55	4.14	7.6%

The number of analogue lines operated by competitors rose to approximately 480,000 by the end of 2004. This represented growth of around 60 percent during the year under review, considerably more than the 40 percent growth in basic rate ISDN lines.

Recent years have seen a steady decline in the overall importance of analogue technology compared to other line types. However, the 2004 figures for competitors revealed a resurgence in the proportion of analogue channels. They now account for around 12 percent of all telephone channels provided by these companies. This increase can be attributed on the one hand to the relatively new services offered by cable TV operators, which allow customers to make calls over the cable network using an analogue telephone connected to a cable modem. On the other hand, it may be that first-time DSL users who have opted for a competitor prefer a product package that includes an analogue line instead of the more expensive basic rate ISDN line.

Growth in competitors' telephone lines



In the last three years, the total number of competitors' lines has tripled from approximately 650,000 to around 1.95 million. Growth of 39 percent in 2003 was followed by 44 percent in 2004. Almost three quarters of all competitors' telephone lines are basic rate ISDN lines, with primary rate ISDN lines accounting for less than two percent of the total.

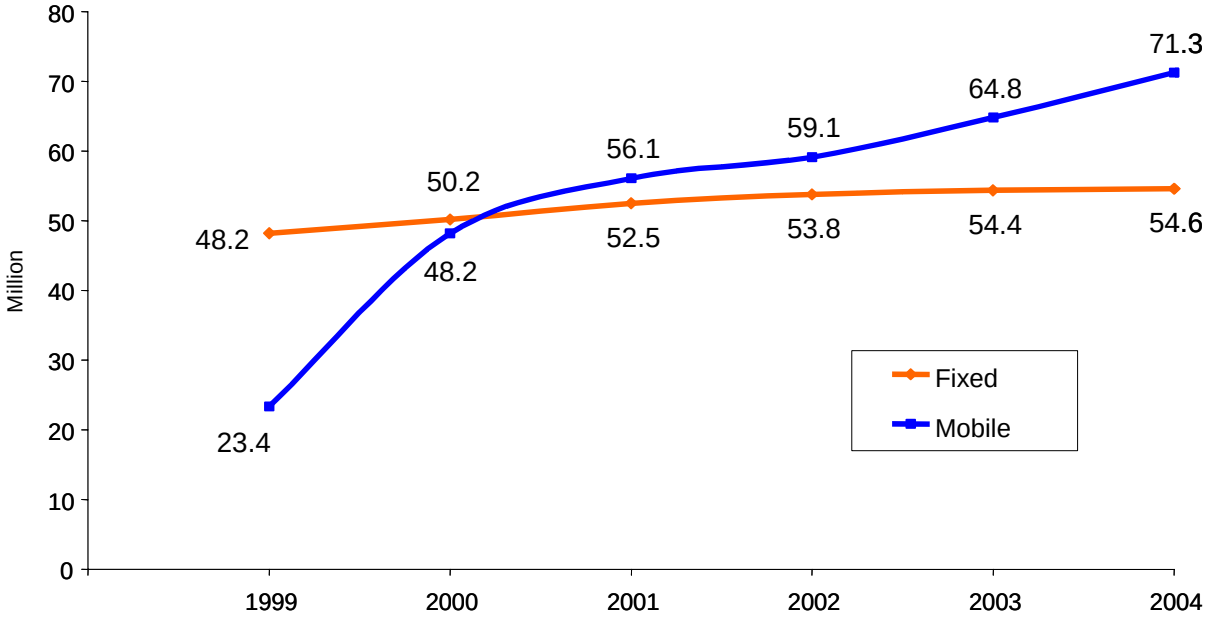
DTAG's competitors have enjoyed different degrees of success in increasing their share of regional markets in recent years. In some parts of Germany, their market share – measured by the number of telephone channels – is far in excess of the national average of 7.6 percent, and even rises above 20 percent in some local networks.

Besides DTAG, 68 companies offered analogue and ISDN lines[9] on the basis of either local loop access agreements with DTAG or their own facilities. Thus there was a choice of access provider for over half the population at year's end.

The growth in the number of mobile phone users has cut the demand for payphones and cardphones, and their numbers had fallen to 106,000 by year's end. Competitors account for 3.7 percent of this market.

A comparison of fixed and mobile telephone channels shows that there are now far more mobile voice channels available than there are fixed.

Growth in fixed and mobile telephone channels



Last year the number of fixed channels barely changed while the number of fixed lines actually fell. In contrast, the number of mobile voice channels increased by ten percent during the same period. This clearly shows that wireless technology is in a position to seriously challenge fixed networks.

Broadband access technologies

Broadband access[10] is available via digital subscriber lines (DSL), cable TV (cable modem), powerline and satellite. A total of around 6.9 million broadband Internet connections were operational in Germany at year's end. Of these, approximately 6.7 million were DSL lines, 145,000 relied on cable modems, 9,300 used powerline technology and around 41,000 were satellite-delivered[11]. These figures clearly show that DSL is the dominant access technology in Germany, accounting for approximately 97 percent of all broadband connections. In 2004, some 17 percent of German households used a DSL line to access the Internet.

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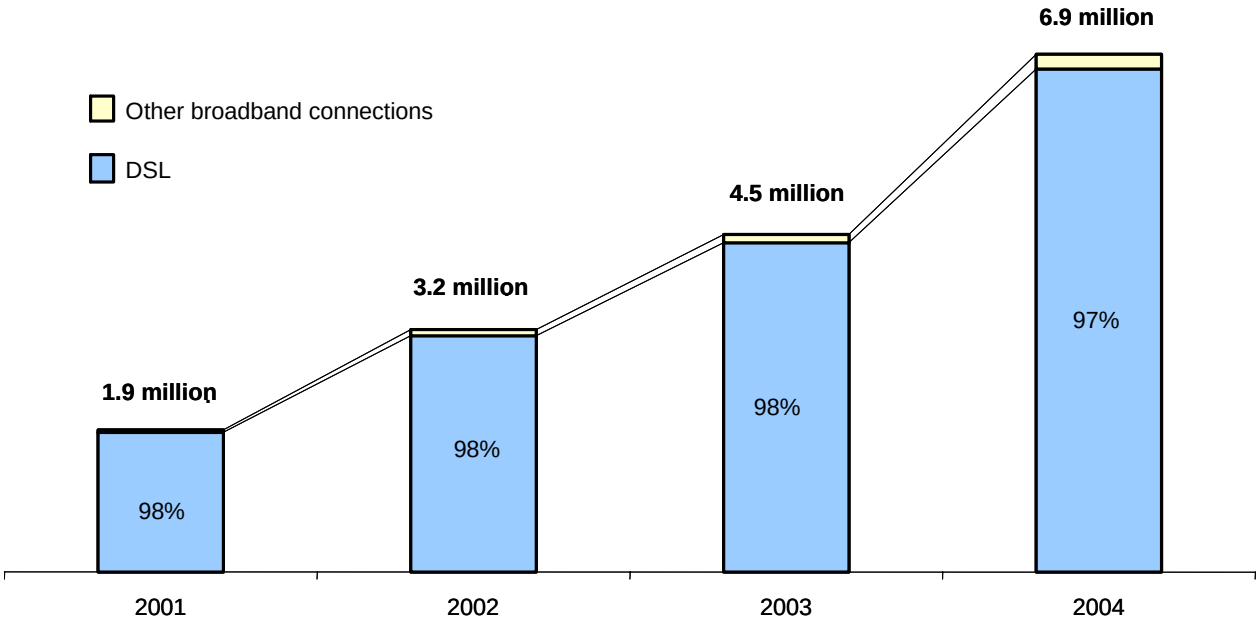
[9] In a small number of cases the service is offered subject to minimum revenues.
[10] Transmission speed in excess of 128 kbit/s.
[11] Cable connections and powerline are only offered by competitors, whereas Internet access via satellite is also available from DTAG.

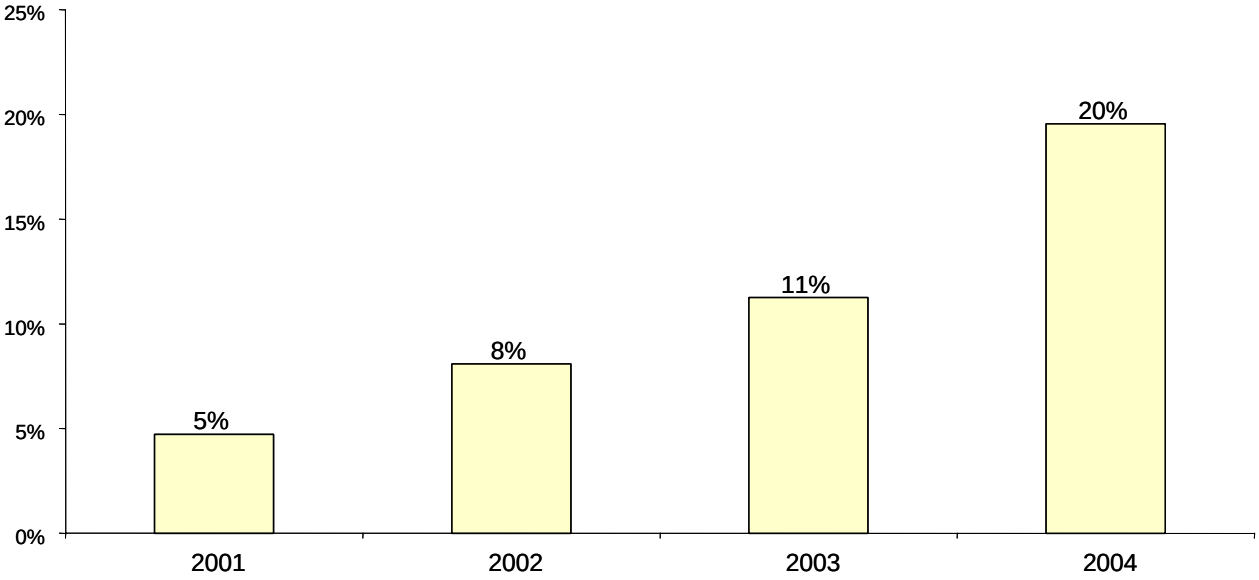
Total number of broadband connections and relative share of DSL



At year's end, competing operators had a share of around 20 percent of all broadband connections, up from approximately 11 percent in 2003.

According to their own information, and even without taking into account the resale figures, competitors have in fact been able to capture a market share of around 50 percent in some local networks.

Broadband connections provided by competitors (DSL, cable modem, satellite, powerline)



Broadband penetration in Germany stands at around eight percent and is therefore slightly above the EU average (according to the European Commission's Tenth Implementation Report). The higher penetration rates in the countries ahead of Germany can often be traced to the greater use of cable connections (via a cable modem). To date, these have played only a minor role in Germany, yet the increase in cable modem connections in 2004 may herald more vigorous competition between different access technologies in future.

DSL

The rapid growth in the DSL market gathered further momentum in 2004. This was partly due to the decision of DTAG to begin reselling its T-DSL lines on the basis of contractual agreements with its competitors. Introduced in mid-2004, resale has presented competitors with an alternative business model, making it no longer necessary for them to operate their own lines.

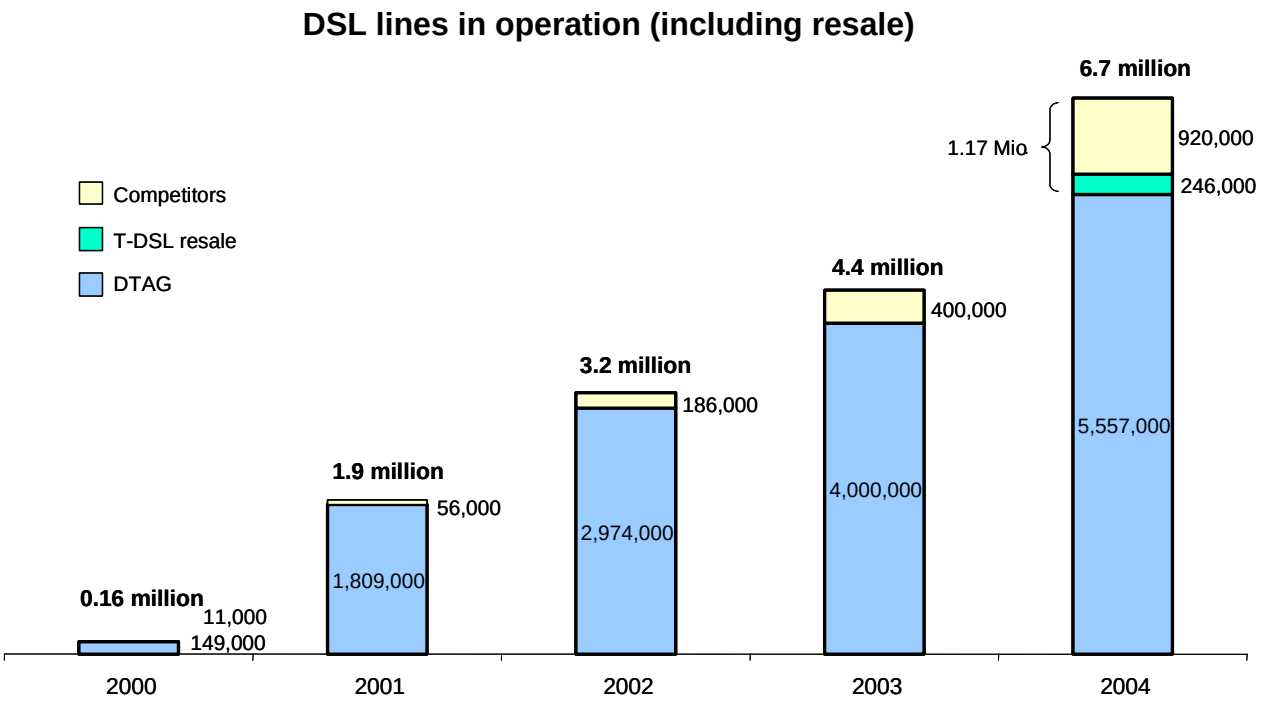
In addition to DTAG, there were over 60 companies offering DSL lines at year's end, either through resale or self-operated infrastructure.

Most of the alternative providers are companies that have set up their own access networks in particular cities or regions and therefore only offer services at a local level. They are joined by a small number of companies who offer DSL lines throughout Germany.

Due to the limitations of DSL technology, no single operator currently offers full nationwide coverage.

At year's end, there were already a total of around 6.7 million DSL lines in operation. Of these, over 5.5 million were lines that DTAG provided directly to its own end customers, whereas its competitors supplied around 1.17 million DSL lines between them (including 246,000 DTAG resale products). Competitors have thus captured approximately 17 percent of the national DSL market, up from around nine percent the previous year. The clear market share gains for competitors are due in particular to the introduction of the resale model. If the effect of this is disregarded, their market share falls to around 14 percent.

On average, approximately 33 percent of all new DSL customers in 2004 opted for an alternative provider (including resale figures).



Germany has more DSL lines in operation (6.7 million) than any other European country[12].

In addition to asymmetrical DSL lines (ADSL), which have different upstream and downstream transmission speeds, symmetrical DSL lines (SDSL) are now playing an increasingly important part in the market. Business users in particular often opt for this network access technology, which represents a relatively inexpensive alternative to leasing fixed lines.

As well as the actual connection, customers also need an Internet access agreement that allows them to use the Internet for a certain fee.

The products offered by access network operators include a charge for Internet use in addition to the telephone and DSL line. This allows their customers to obtain the whole package of telephone line, DSL line and Internet access from a single source. In contrast, DTAG's T-DSL customers can choose from the entire range of Internet price plans that ISPs offer to T-DSL users.

The price war among providers of DSL lines hotted up considerably in 2004. It is now possible to obtain a complete package comprising a telephone/DSL line and flat rate Internet access for less than €40.

Cable connections

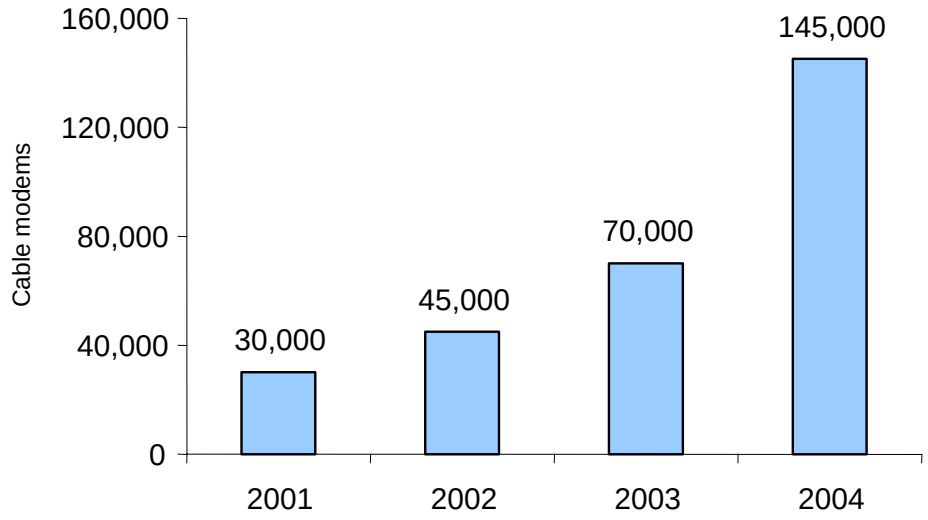
Cable networks that have been upgraded to offer return channel capability permit the use of additional broadband services, such as Internet access, via cable modem. This method allows high bit-rate transmission – currently up to 10 Mbit/s. At year's

[12] Tenth Implementation Report of the European Commission.

end, there were around 35 cable network operators offering such services, which are used far more widely in other countries than they are in Germany. Nevertheless, thanks to the growing geographical availability of this technology, together with its low price, there are now 145,000 German households that access the Internet by this means. This is more than twice as many as at the same time the previous year and interest appears to be still growing. In fact, the number of customers who could be directly connected to the Internet in this way is several times higher than the current figure. Large-scale upgrading of network level 4 (ie subscriber lines) to provide return channel capability, coupled with attractive prices, could create a cable infrastructure for Internet access that offered a real alternative to the conventional two-wire circuit used with DSL.

The large cable companies have already upgraded network level 3 so that over three million households could now be supplied with broadband Internet access.

Growth in Internet access via cable modem



Powerline
Six companies use the power grid to offer high speed Internet access at different locations in Germany. At year's end, over 9,000 households benefited from broadband Internet access via this medium, while a further 155,000 could be connected with a minimum of delay. The widespread availability of electricity networks and suppliers boosts the appeal of powerline technology and ensures that it attracts a lot of international interest.

Satellite
Satellite systems are an alternative means of broadband Internet access and offer the advantage of almost universal availability, regardless of the terrestrial infrastructure. The different systems used by the public fall into two main categories.

Hybrid services use the satellite as a forward channel to transmit high-volume content. The conventional telephone or ISDN line then serves as the return channel. These services offer high speed, relatively inexpensive data transfer in areas where

fixed network access, via DSL or cable, is technically unfeasible. There are around ten companies that provide such unidirectional services in Germany, with home users forming the main customer group. Compared to the previous year, the number of users fell slightly in 2004 and now stands at 40,000. This was due to market restructuring, however; in the medium term, user numbers are expected to rise again before levelling off.

In the case of bi-directional services, the satellite is used for both the up- and the downlink. Advances in technology have led to a sharp fall in hardware costs and products are now available for as little as €1,500, compared to around €20,000 just seven years ago. Nevertheless, the high cost of these terminals means that they are still largely the preserve of business users, who numbered just under 1,000 at year's end.

Very Small Aperture Terminals (VSAT) are employed by closed user groups and make it possible to exchange large volumes of data between parties, whether they are in the same country or on different continents. VSAT systems transmit data, text, voice and images at very high speed (up to 45 Mbit/s) and provide a means of fast and cost-efficient internal communication for virtually any company with a highly scattered or international network. This makes them particularly well suited to international corporations that operate at many different locations. VSAT systems are used not only by large companies, however: In Germany, where there are 22 providers, the customer base ranges from small and medium-sized enterprises with just ten sites to pan-European companies operating at over 4,000 locations.

WLAN

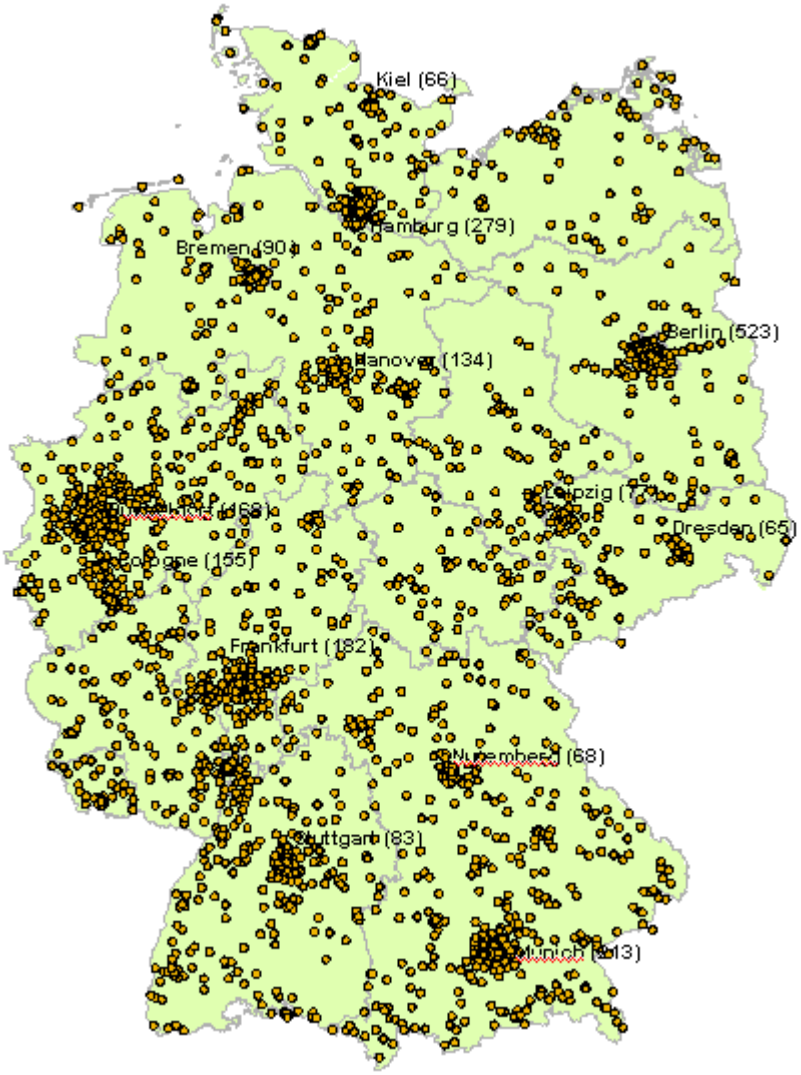
According to Portel[13], a website offering a database of hotspots, at year's end there were around 6,000 public hotspots operated by a wide range of commercial providers, with the ten largest accounting for 90 percent of the total. This is more than four times higher than the figure for the previous year, and it is estimated that the number of public wireless access points could rise to as many as 10,000 by the end of 2005. As well as the public hotspots, there are numerous networks operated on a non-commercial basis, for instance by private providers and clubs.

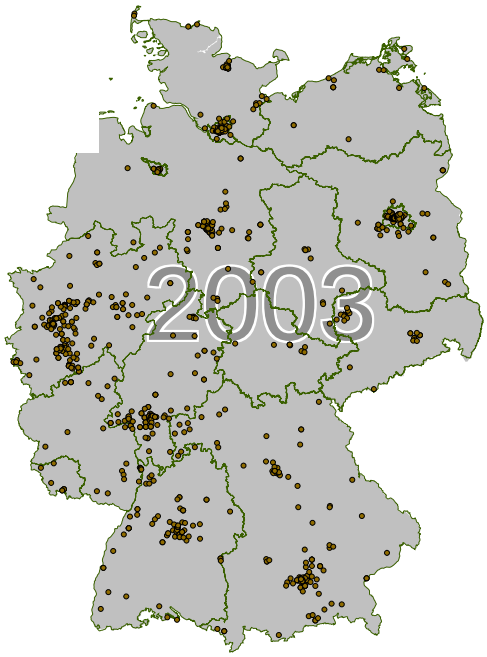
Contract subscribers are billed through their provider (eg on their phone bill), Alternatively, customers can use a credit card or voucher[14] to purchase network access for a certain length of time. There are numerous cooperative ventures between providers that simplify the payment process.

Under the heading of Fixed Wireless Access (FWA), RegTP intends to make frequencies available for wireless applications that bridge the last mile, thereby paving the way for innovative means of providing wireless broadband access. Using new technologies specified in the IEEE 802.16 (WIMAX) family of standards, it will then be possible to offer broadband access in areas where DSL is currently unavailable.

[13] Hotspot location finder at: www.portel.de
[14] The information needed for WLAN access is printed on the voucher.

Distribution of commercial hotspots in Germany
(as of January 2005)



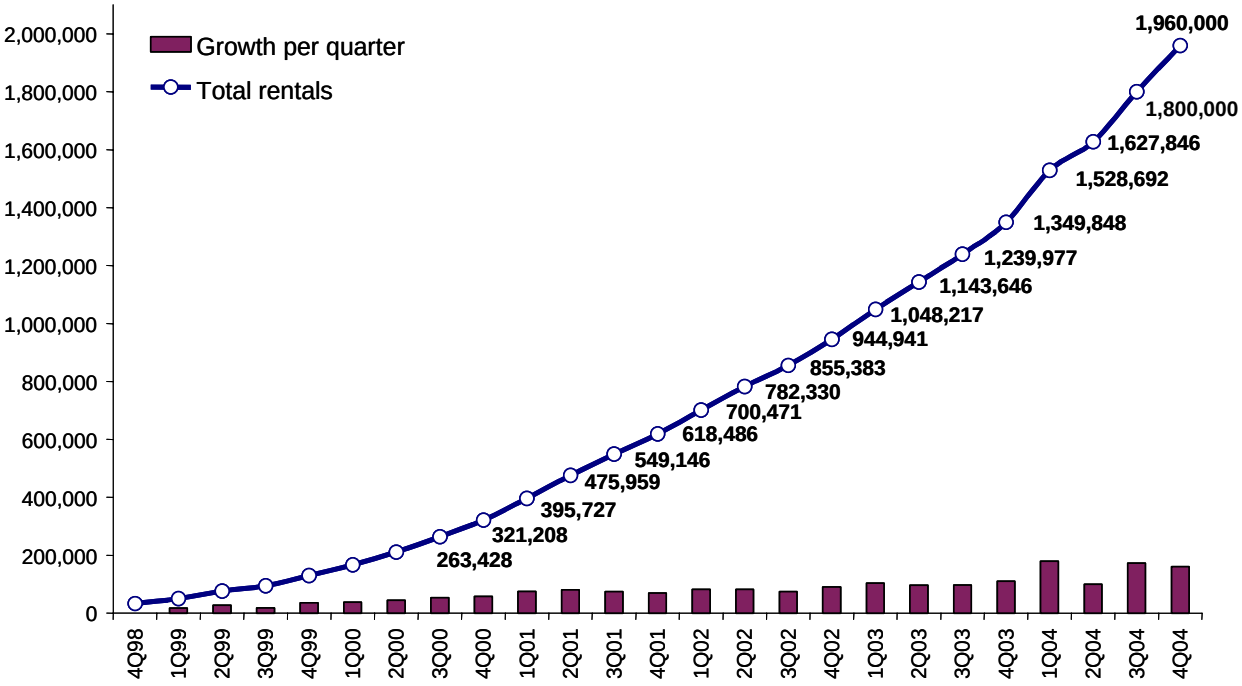


Access to DTAG's loops
In addition to their own lines and wireless links, competitors rely primarily on leasing loops from DTAG to obtain customer access (via analogue, ISDN and DSL lines). At the end of 2004, some 95 percent of all telephone lines provided by competitors were realised via leased loops.

In order to obtain access to the loops, competitors must first sign a contractual agreement with DTAG. By year's end, DTAG had signed rental contracts with more than 93 companies.

DTAG offers leased loops in a total of 19 different product variants. In 2004, the combined rentals of all product variants that were in operation amounted to 1.96 million, with unbundled copper pairs accounting for most of these. At the same time, the number of high speed local loops (used for broadband services) increased sharply, while line sharing also continued to gain ground.

Growth in DTAG's local loop rentals

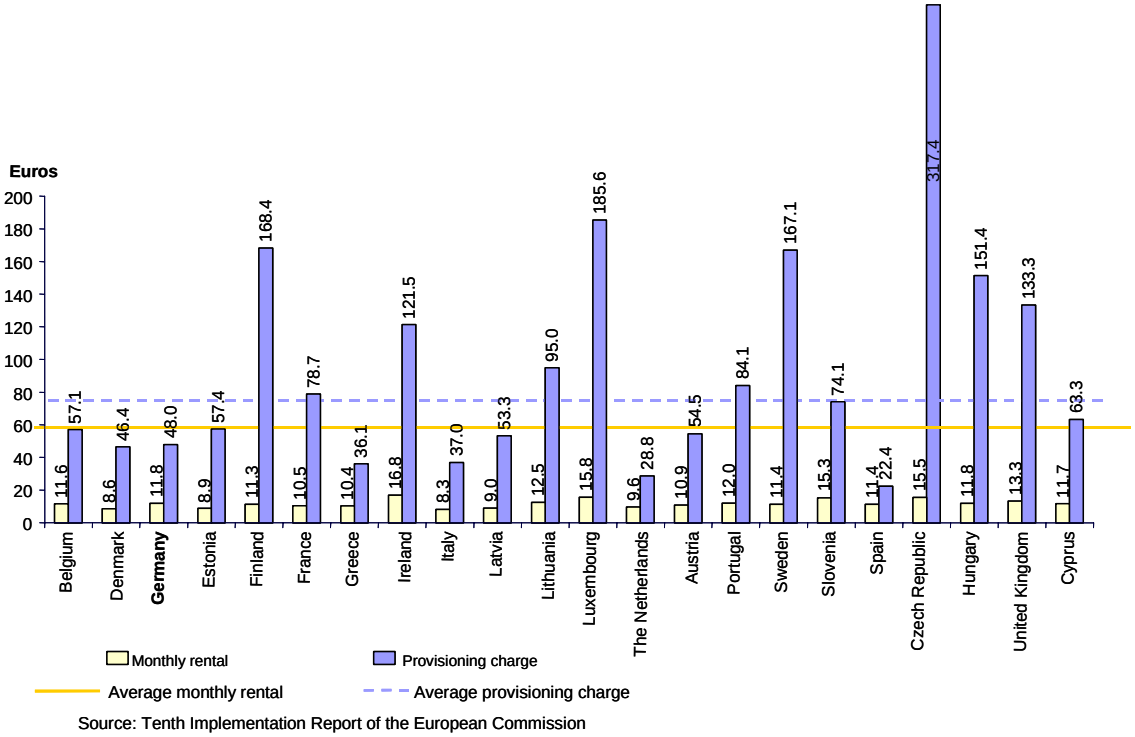


Source: DTAG

There was a sharp climb in demand in 2004, with the signing of approximately 610,000 new rental contracts. The strong demand on the part of access network operators is currently due in large measure to the booming market in DSL lines for Internet use. Like DTAG, most competitors only offer this product in combination with a telephone line.

The monthly rental fee for unbundled local loop access is €11.80, placing Germany roughly in line with the European average (€11.23). One-off provisioning charges, however, are considerably lower than average (€48 compared to €75.67).

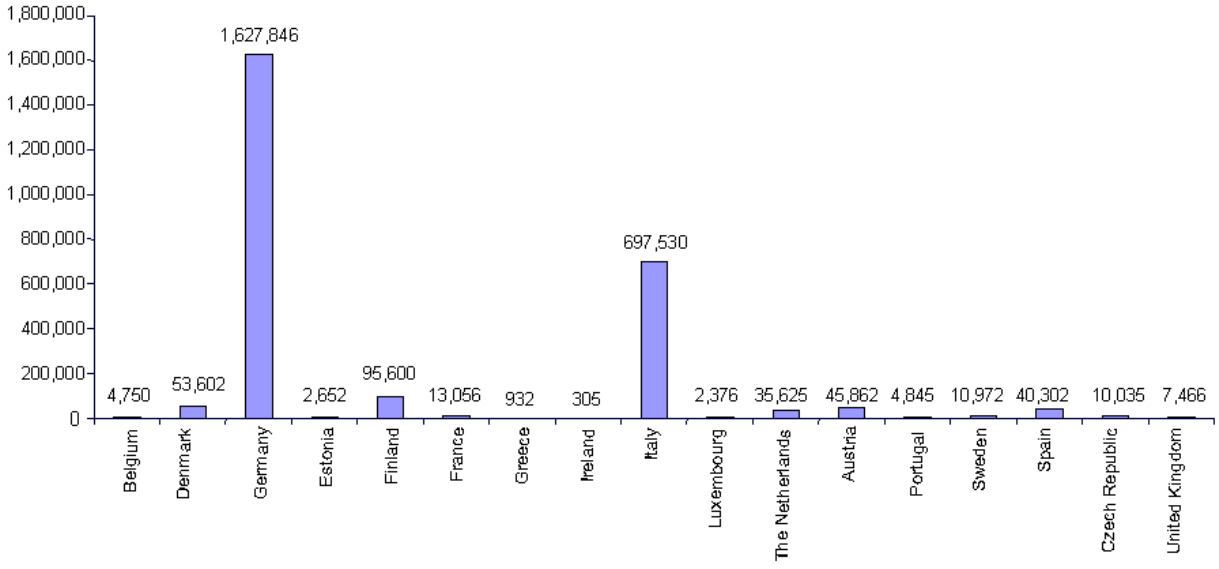
European prices for local loop access (as of August 2004)



Source: Tenth Implementation Report of the European Commission

Germany is the European leader in terms of local loop rentals[15], accounting for around 60 percent of all unbundled local loops in Europe.

European local loop rentals (as of July 2004)



Source: Tenth Implementation Report of the European Commission

[15] Tenth Implementation Report of the European Commission.

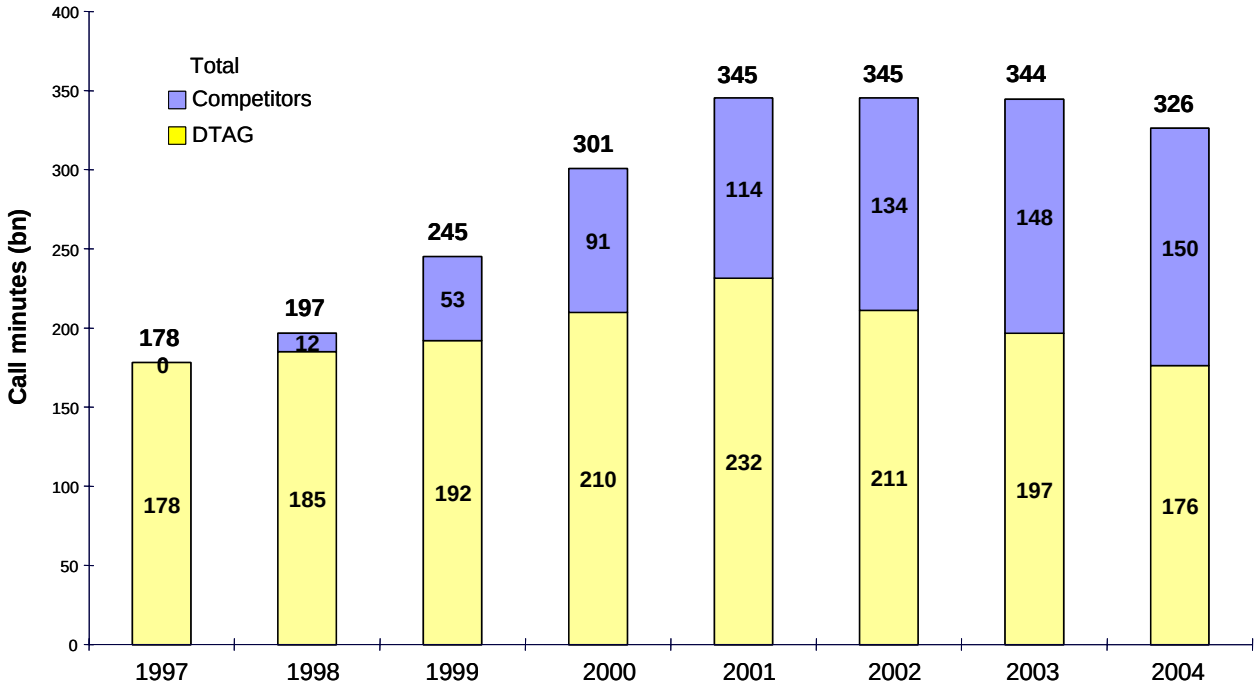
Co-location is a prerequisite for local loop access. DTAG provides a room for this purpose at the site of the main distribution frame for the relevant access area. At year's end, there were around 2,700 such colocation facilities in operation.

Traffic volumes in the fixed network

The volume of narrowband fixed network traffic (switched calls using analogue and ISDN lines) was around 326 billion minutes in 2004, a fall of 5.2 percent from the previous year. There are a variety of reasons for this. These notably include the substitution of mobile phones for fixed lines and the shift away from narrowband switched services to broadband DSL. Furthermore, it is reasonable to assume that e-mails will have replaced some fax and voice communication. At year's end, the number of broadband DSL lines was approximately 6.7 million, up by over 50 percent from the previous year's figure of 4.4 million. In fact, broadband Internet connections generated around 536 million Gbytes of traffic in 2004, a year-on-year increase of 34 percent.

As mobile phone use continues to rise, wireless calls are replacing some of the switched calls previously made in the fixed network. This trend is facilitated by wireless products that offer a Homezone, within which users can make calls at fixed network prices and receive calls under a fixed network number. According to figures from the Federal Statistical Office, at the start of 2003 there were 1.6 million private households in Germany – four percent of the total – that had mobile phones but no fixed lines. This figure rose to around 25 percent in households where the occupants were under 25.

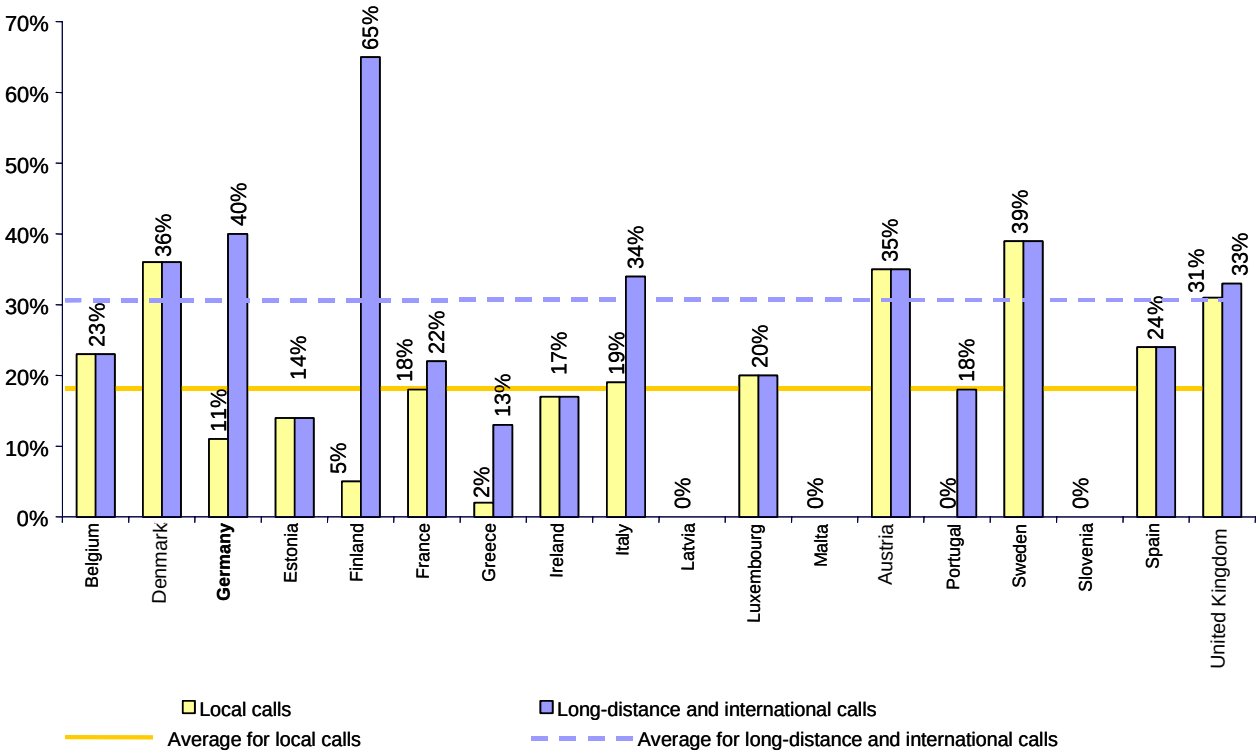
Call minutes in the fixed network 1997 – 2004[16]



[16] DTAG traffic includes self-supply.

The continuous growth in the competitors' market share is worthy of note. In 2004, they were able to increase their share of switched calls in the fixed network by three points to 46 percent. In fact, forty percent of users now have an alternative provider for long-distance and international calls; Finland is the only European country where this figure is higher. With regard to the competitors' share of local calls, however, Germany still lags behind other countries, although it should now be nearing the international average in this regard, too.

Percentage of subscribers using an alternative provider for voice services (as of July 2004)



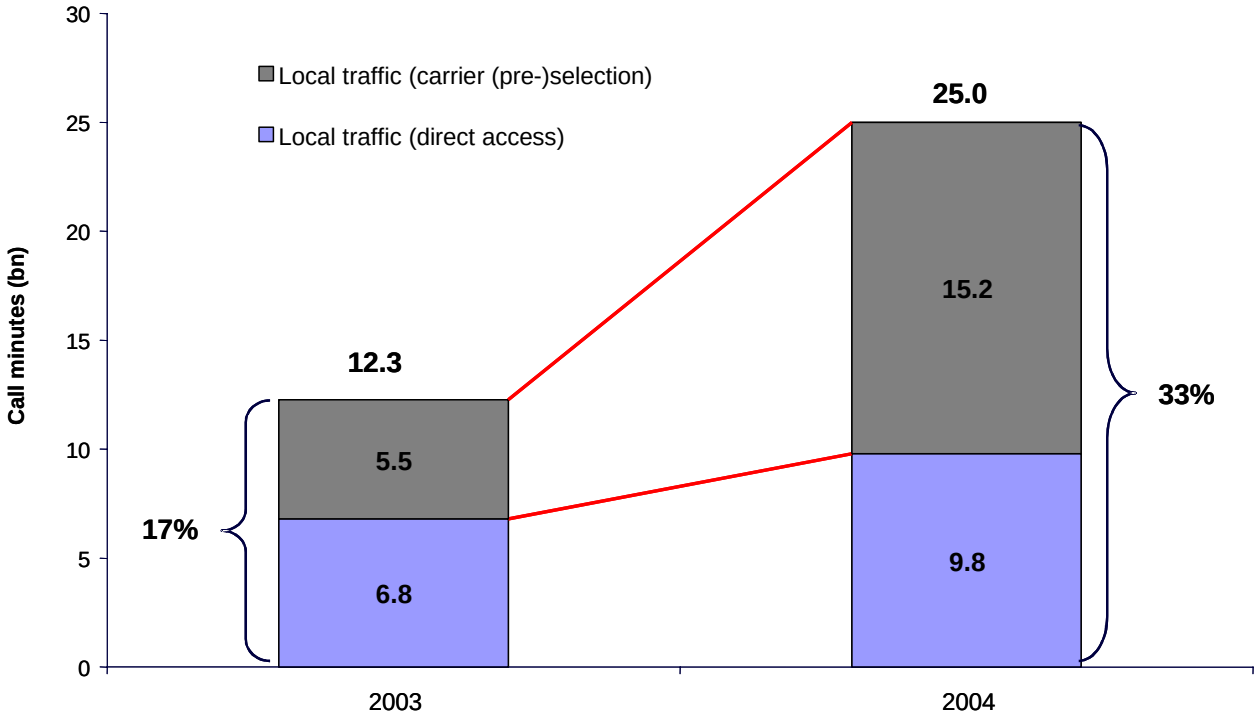
Source: Tenth Implementation Report of the European Commission

Local traffic

The growth of competition in the local call segment is of particular interest. This follows regulatory decisions that made it possible for consumers, starting in 2003, to select an alternative provider for local calls by means of either call by call or preselection. More and more consumers are now making use of the opportunity to pre-select an alternative provider. Of the six million customers who had already taken this step by year's end, 4.1 million used an alternative provider for both local and long-distance calls, and 1.9 million for long-distance calls only.

In 2004, the competitors' share of the local call market, measured in call minutes, was just under 33 percent (up from 17 percent in 2003). Alternative carriers accounted for around 61 percent of these 25 billion minutes, and access network operators for the remaining 39 percent.

Growth in the competitors' share of the local call market (absolute and relative)



Price trends – move towards fixed prices and flat rates

The year under review was marked by a profusion of special offers from providers of fixed network services. These included waiving the one-off connection charge, giving users free call minutes and offering equipment to new ISDN and DSL customers at a discounted rate or free of charge. The strong demand for DSL has prompted nearly all providers to extend their special offers beyond the end of 2004. An ISDN line with DSL access and an Internet flat rate is currently available for under €40, considerably less than it would have cost a year ago. And a DSL line including telephone service and an Internet and telephone flat rate can be had for as little as €60 a month. There was also a continued trend towards pricing options whereby customers pay a monthly premium in return for cheaper calls at certain times; in some cases, the price will cover all the customer's phone calls. In fact, it is now possible to make unlimited national calls for €20 a month.

Mobile operators are offering price plans whereby customers pay a fixed price for a certain number of call minutes each month (50, 100, 200 or 500). There is no line rental and any extra call minutes they use are charged and invoiced separately. Some mobile providers continue to offer additional packages that provide customers with a certain number of "free" call minutes, or even unlimited calls, at particular times (eg weekends). Mobile companies are also seeking to enhance the appeal of their product and to make wireless a viable alternative to the fixed network. To this end, they are offering special prices of three cents per minute for phone calls to fixed line numbers at weekends and outside business hours, as well as special prices for calls to fixed lines made from within a Homezone.

Lining up against them are the providers of conventional fixed network services, the cable TV companies and the ISPs, some of whom are offering free phone calls or free Internet telephony between their customers in an effort to secure and expand their customer base.

Customers can, for instance, make unlimited Internet calls (voice over IP) within Germany for a fixed price of €20 in the first month. And it is also customary for such services to include a certain number of free minutes.

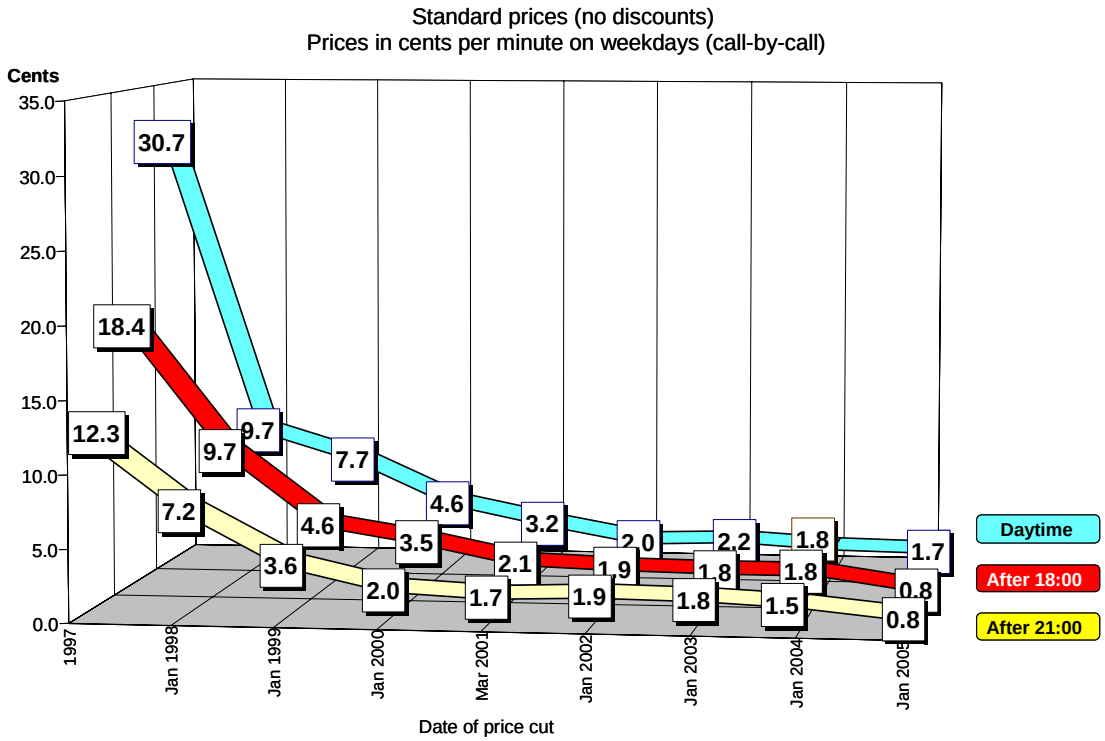
Price competition used to be restricted to providers of conventional fixed network services, yet it is increasingly being waged between, as well as within, segments. Traditional phone companies are competing with providers of Internet telephony and mobile companies to satisfy the demand for communications services, and there have already been the first signs of substitution, in terms of both call and line providers. Mobile networks already account for 15 percent of all phone calls, and their operators view fixed network customers as a potential source of additional growth.

Although connection charges rose during the year under review, call charges fell. The Federal Statistical Office's 2004 price index for telecommunications services consequently dropped by 0.4 compared to the previous year's average. Of course, there is a certain time delay before changes in consumer behaviour are reflected in the index.

The downward trend in prices for national weekday calls continued in 2004. Depending on the time of day, these are now just four percent of what they were during the monopoly; with call by call, it is even possible to make national calls for less than one cent.

The following chart illustrates price trends for indirect access calls delivered by the cheapest provider.

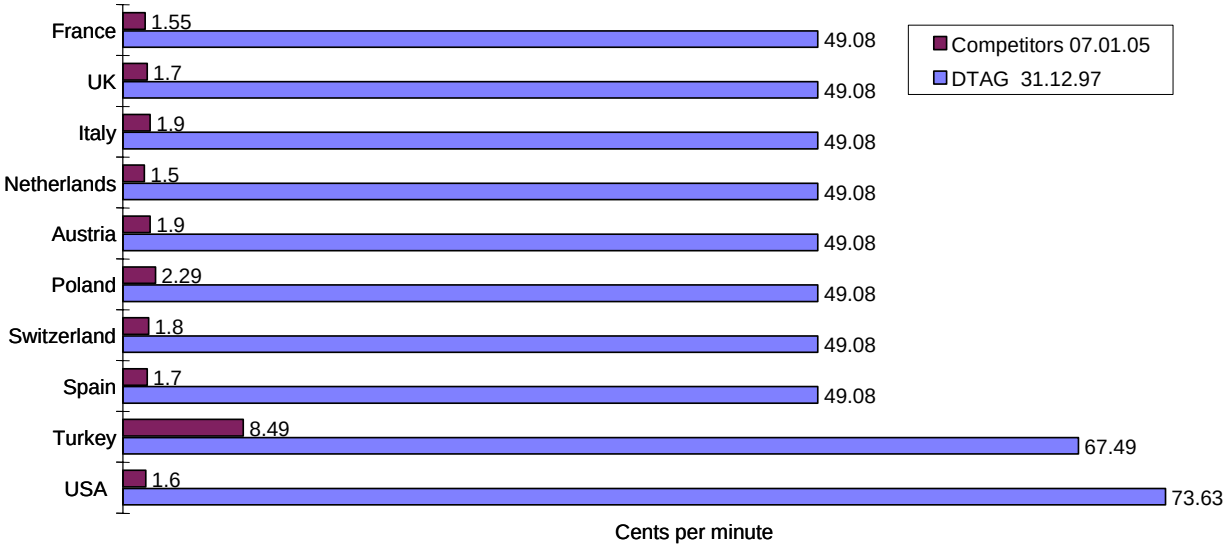
Minimum prices for fixed national calls



Prices for calls to the ten major destination countries are now just three percent of what they were before liberalisation. Between January 2004 and January 2005, some prices fell by as much as 44 percent. There have even been promotions that offered customers free international calls for a limited period (eg to the USA).

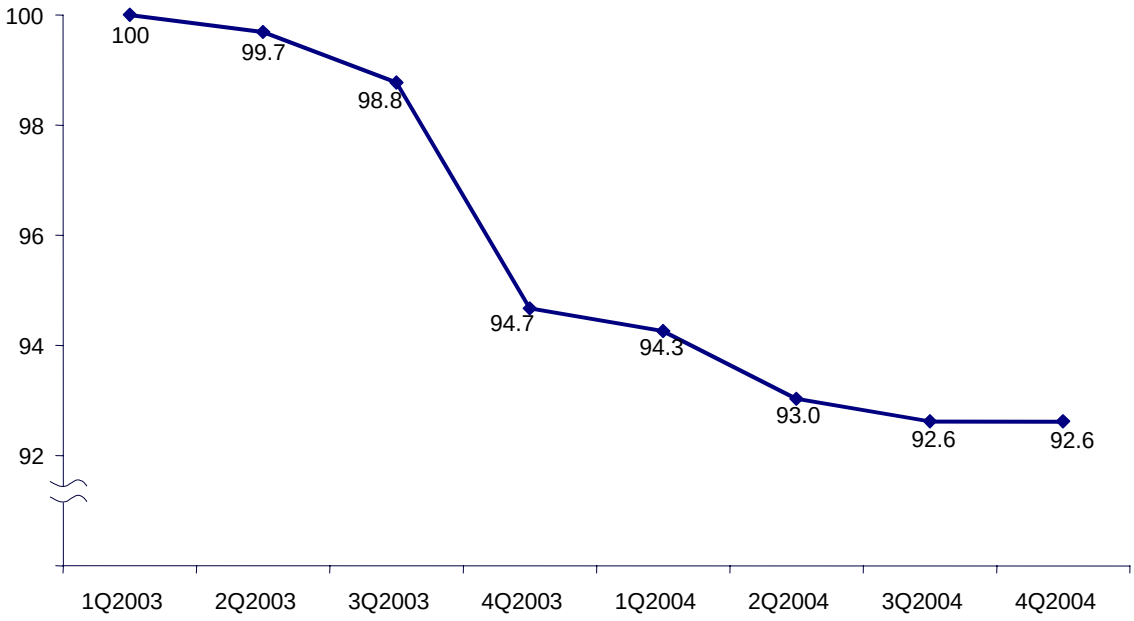
Prices of international calls to ten major destinations (as of 7 January 2005)

Standard prices (no discounts) – peak weekday hours



According to the Federal Statistical Office, prices for local calls continued to fall in 2004.

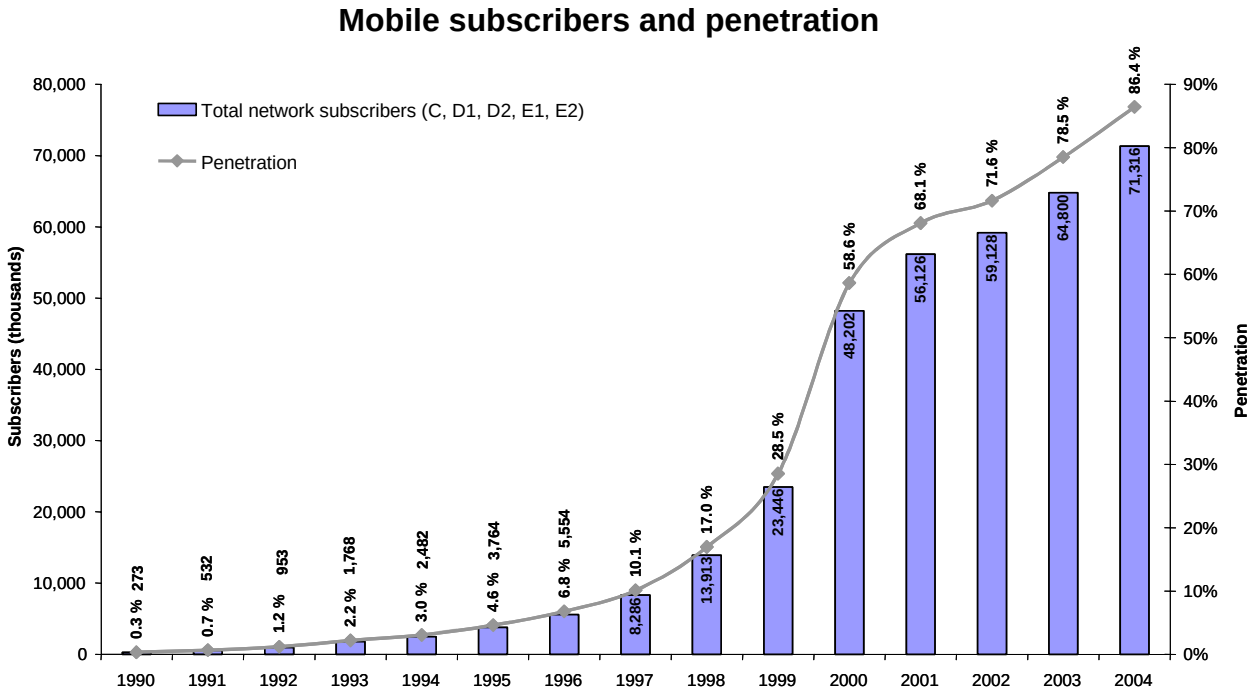
Price index for local calls, April 2003 = 100



Mobile market

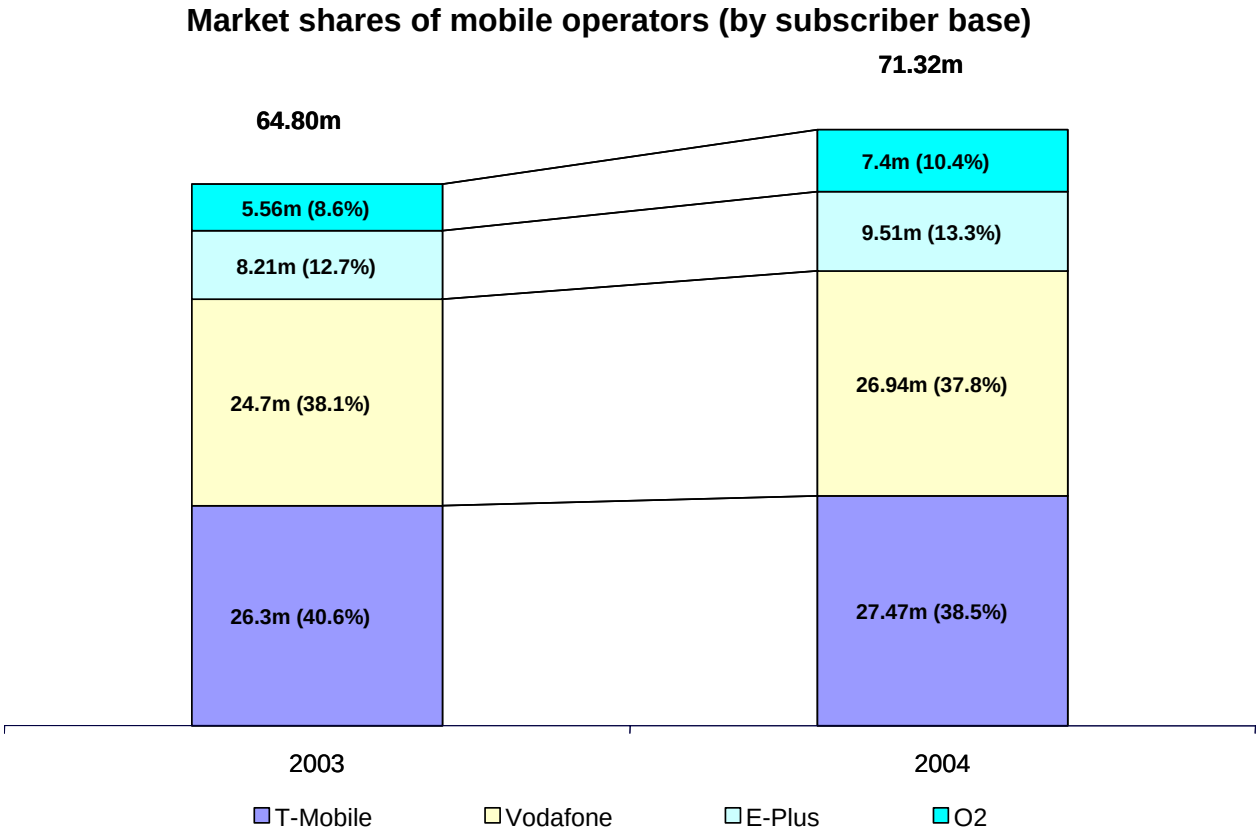
Subscribers and penetration

In 2004, the four German network operators were able to increase their combined subscriber base to 71.3 million, a gain of 6.5 million subscribers compared to the previous year. This amounts to growth of ten percent. As a result, mobile phone penetration[17] in Germany rose to 86.4 percent, bringing it into line with the European average.

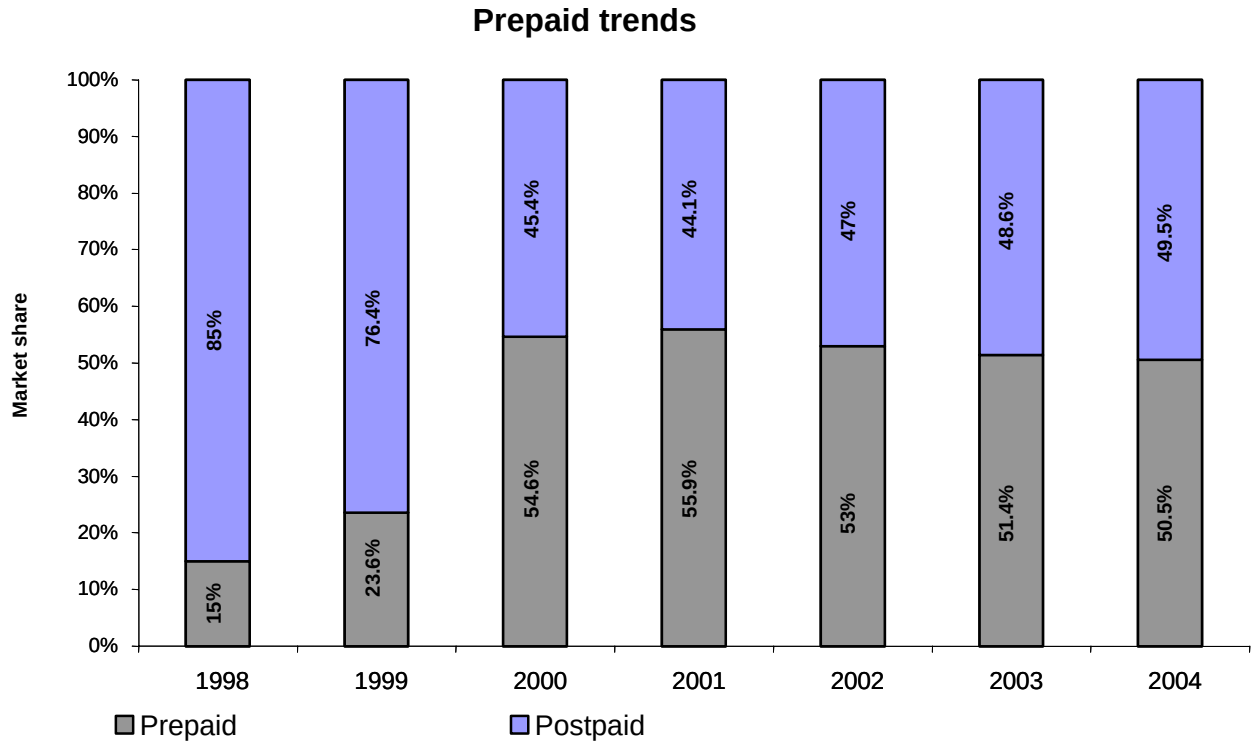


Subscriber figures show a shift towards smaller network operators in terms of market share.

[17] Penetration = active mobile phones / total population



The proportion of prepaid customers continued to fall during the year under review. This is due to the fact that many network operators are focusing on growing a profitable subscription customer base. Special prepaid products have, however, been brought onto the market through new sales channels and have stimulated competition.



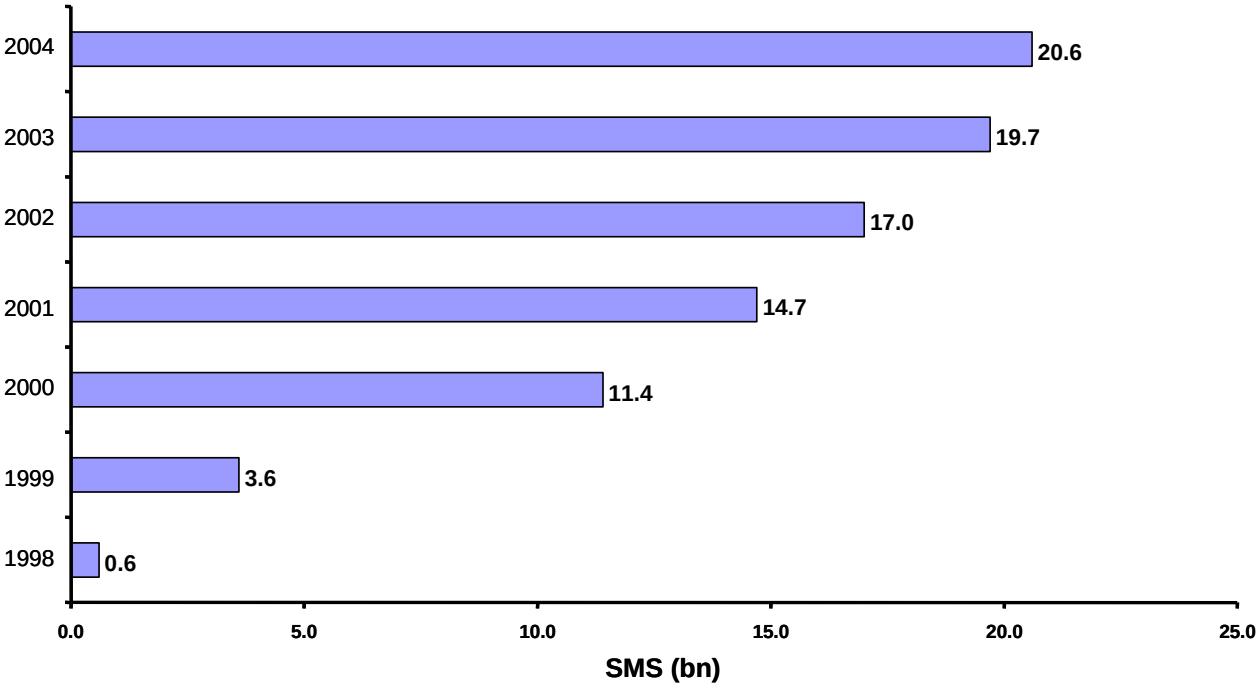
The market share of independent service providers continued to fall slightly in 2004, and they now account for 26 percent of the total number of users (compared to 27 percent in 2003). Nevertheless, the service providers were able to increase their customer base by around 0.9 million to 18.45 million.

Network operators are stepping up their efforts to substitute mobile phones for traditional fixed lines. For instance, they are offering customers additional fixed network numbers for their mobile phone, as well as price plans that include such benefits as low-priced calls to the national fixed network.

Revenues
Mobile providers' cumulative revenue totalled €22.1bn[18] in 2004. This does not take into account interconnection revenues and internal revenues.

Call volumes
According to the figures currently available, the volume of outgoing calls from the four mobile networks rose to 37.2bn minutes, a gain of around nine percent compared to the previous year. The number of messages sent via Multimedia Messaging Services (MMS) increased approximately threefold to 91 million, while the number of text messages (SMS) sent from mobile networks also went up, in this case by four percent to around 20.6bn.

Short text messages sent (1998–2004)



According to the Federal Statistical Office, prices in the mobile market fell by 1.1 percent overall. Prices for text messages, however, remained stable at an average of €0.19 per message. In the middle of the year there was a sharp drop of up to 70 percent in the prices for Multimedia Messaging Services (MMS). The average price per message is now €0.39.

[18] Cumulative external revenue of mobile providers (excluding carrier business)

Investment
German mobile operators invested around €2.3bn in the year under review. Most of this was spent on UMTS network rollout, which began at the start of 2004.

UMTS
UMTS network rollout progressed so swiftly that the coverage targets which UMTS licence holders were obliged to meet have been exceeded. By the end of 2004, network coverage had already reached 70 percent in some cases. The start of pre-Christmas trading in November 2004 saw the launch of a range of new services by network operators.

Internet market

Internet access
Internet Service Providers (ISPs) offer both narrowband and broadband Internet access services.

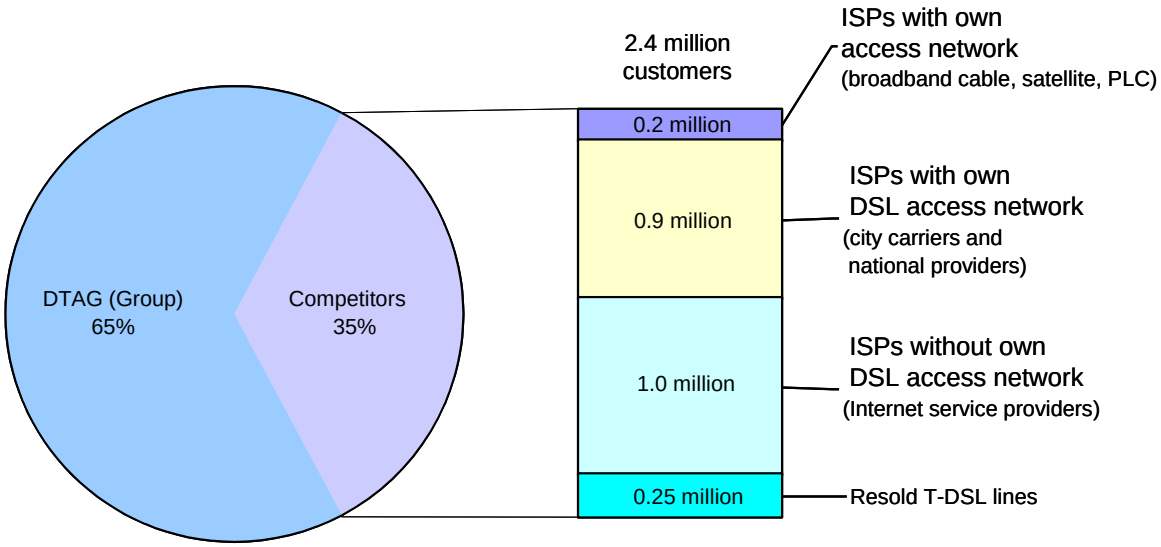
The total number of contract subscribers using broadband Internet services had risen to around 6.9 million by the end of 2004. This corresponds to average growth of approximately 50 percent in broadband Internet usage during the year under review, disregarding occasional call by call access.

In fact, ISPs that deliver their service via DSL succeeded in more than doubling their combined customer base, with resold lines accounting for one-fifth of this growth. Nor were these gains confined to alternative ISPs that offer a combined package comprising line and Internet access; ISPs without their own access network also enjoyed strong customer growth in 2004 and now account for some one million customers. A further 200,000 customers obtain ISP and access services from companies competing with DTAG via broadband cable (cable modem), satellite and powerline (PLC). City carriers and national providers account for an additional 920,000 broadband users.

According to the current RegTP assessment for 2004, around 35 percent of all contract subscribers with high speed Internet access[19] had chosen one of DTAG's competitors as their ISP. This signifies a nine percent year-on-year increase in the competitors' market share.

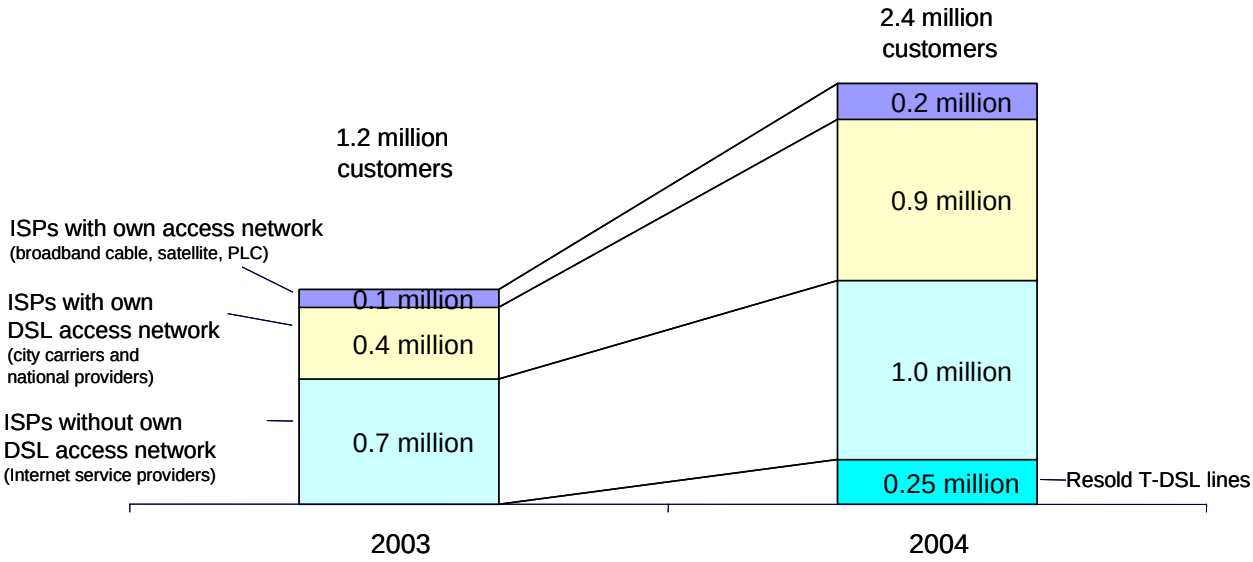
[19] In excess of 128 kbit/s.

Market shares of broadband Internet access services in 2004



6.9 million customers in total
(rounded figure)

Growth in the competitors' customer base



Broadband Internet access is defined in terms of the physical line characteristics, regardless of whether the user has chosen a narrowband or broadband price plan. For instance, broadband is still available even if a customer with a DSL line has chosen to pay for Internet usage by the minute, as if they had a narrowband access.

Internet packages
Over 900 ISPs were registered with RegTP at the start of 2005. There is consequently an extremely wide range of Internet services available.

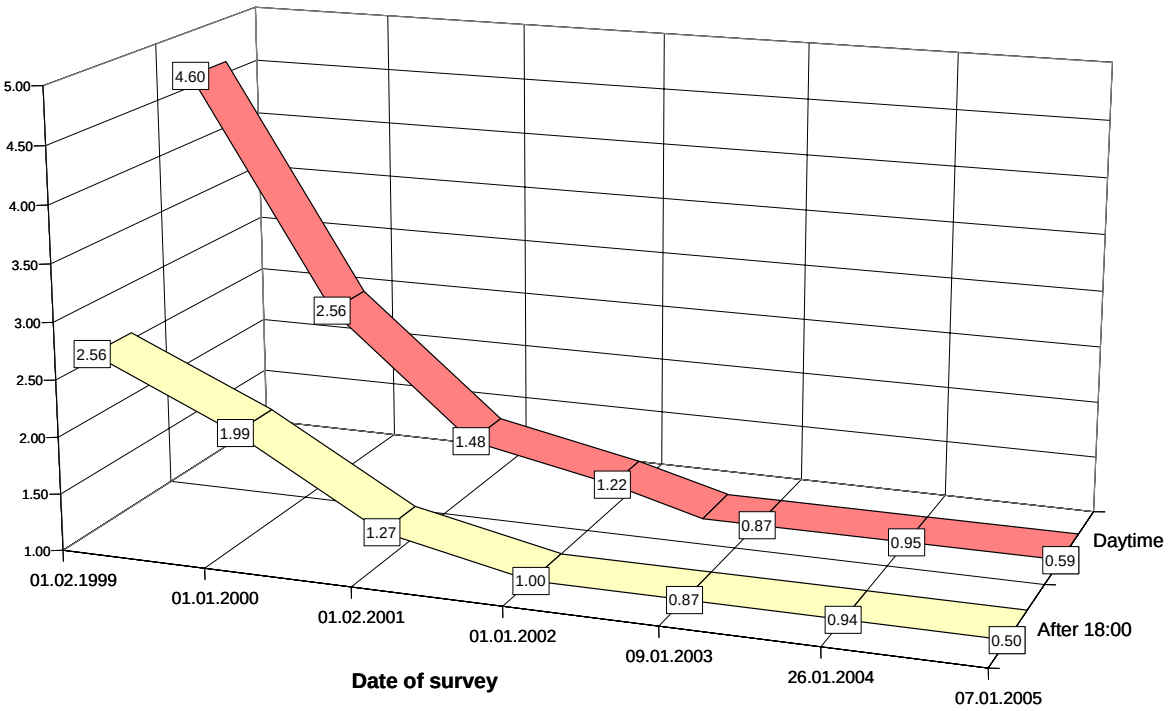
The Internet is used in public places such as Internet cafés and libraries, as well as at home and at work. The foundation "*Digitale Chancen*", which promotes Internet use, keeps track of the places in Germany that offer Internet access on either a commercial or a non-commercial basis. For the year under review, it identified 8,000 such locations across the country.

The drop in prices was one of the main factors contributing to an increase in the number of users as well as the high usage volume. This is true of Internet by call (or pay-as-you-go) services as well as volume-based, time-based and flat rate price plans.

The pay-as-you-go option is seen primarily with narrowband Internet traffic, where customers use a dial-up modem to go online. The broadband access segment, on the other hand, is dominated by flat rate, volume-based and time-based price plans.

Pay-as-you-go allows users to get online without having to enter into a long-term contractual relationship. The prices for these metered services are still falling, and are now 87 percent lower than they were in February 1999. Users can benefit from further price reductions by registering with one of the pay-as-you-go providers.

Minimum prices for pay-as-you-go Internet access



(as of 7 January 2005)

The fall in prices has also been confirmed by the Federal Statistical Office's retail price index, which revealed that prices for Internet usage in 2004 were on average 3.3 percent lower than in 2003.

The flat rates offered by ISPs are aimed primarily at heavy Internet users.

Internet users

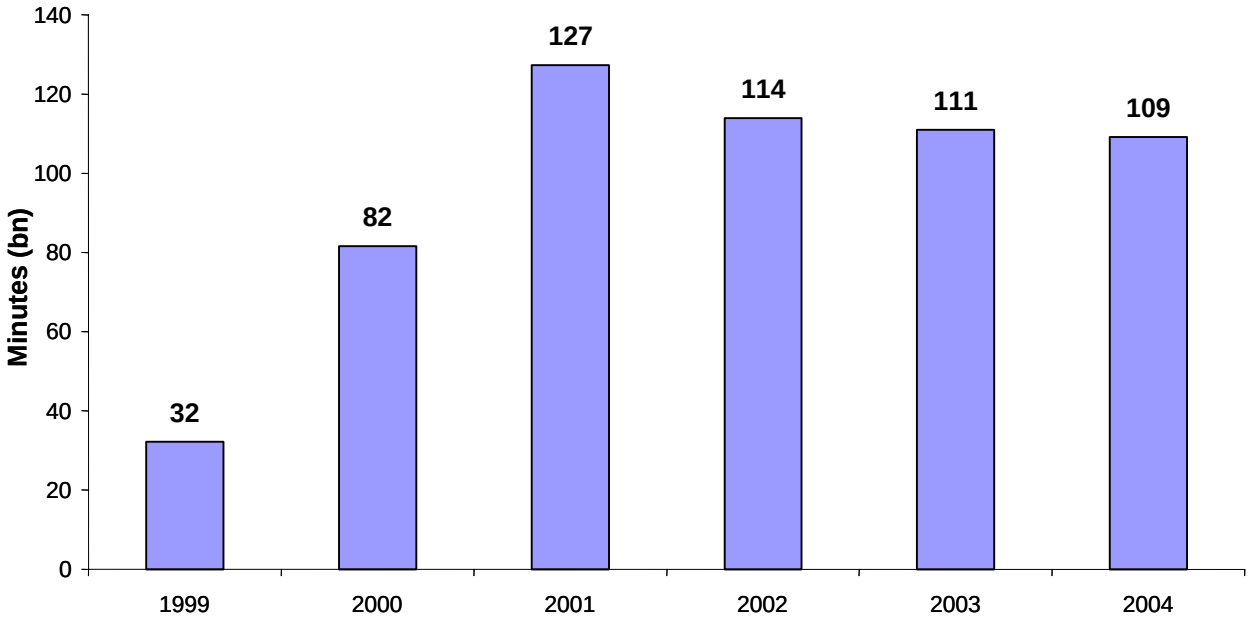
The number of Internet users continued to rise in 2004, although more slowly than in previous years. On the basis of different studies[20], RegTP estimates that at the end of 2004 there were around 35 million regular Internet users over the age of 14 in Germany. This is an increase of approximately five percent from the previous year and means that some 54 percent of this age group are now routinely online. By contrast, the growth rates for 2003 and 2002 were 17 percent and 13 percent respectively. The figures include Internet use at home, work, school and university, as well as in public places.

The year under review was also marked by an accelerated trend towards broadband access (via DSL and cable).

Internet traffic

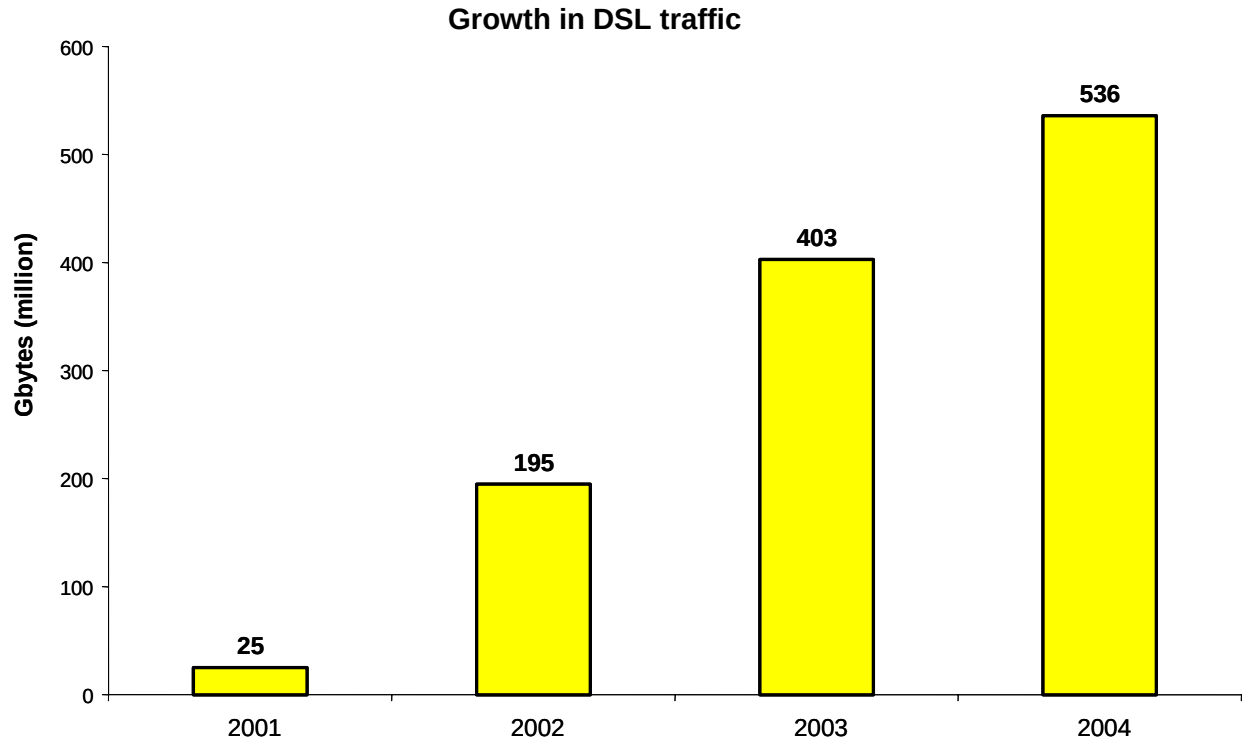
There was a slight year-on-year reduction of around two billion minutes in the volume of narrowband Internet traffic carried over the fixed network. Nevertheless, Internet connections still accounted for one-third of all narrowband fixed network traffic in 2004, and if DTAG's traffic is disregarded the proportion rises to almost one-half.

Narrowband Internet traffic (minutes)



The strong year-on-year growth in DSL traffic, which is measured in terms of the quantity of data transmitted both up- and downstream (in Gbytes), continued in 2004. However, the growth in traffic volume does not match the increase in the number of high speed lines. One of the reasons for this is that even "normal" (light) Internet users are increasingly opting for a broadband connection.

[20] Two studies of Internet use: (N)ONLINER Atlas 2004 (tns emnid, initi@tiveD[21]); ARD/ZDF-Online-Studie 2004.



In addition to the traffic generated by customers of DTAG and alternative network operators, the preceding chart also includes the figures for ISPs that do not have their own access network.

Voice over IP (VoIP)
VoIP is a service that uses Internet protocol (IP) technology to transmit voice traffic over a packet-switched data network such as the Internet or a managed IP network. VoIP services can only be used with a broadband Internet connection.

VoIP has already been employed in corporate networks for some years now, where its main advantage is the ability to integrate voice and data in a single network. The first commercial services for home users were launched at the end of 2003 and by the end of 2004 the number of providers had risen to fifteen. These include ISPs without their own network as well as companies that specialise in VoIP and access network operators that provide their own lines and Internet access services.

In contrast to earlier product offerings, which were entirely software-based and needed the PC to be switched on in order to work, today's products are far more user-friendly. Special VoIP telephones are no longer needed (a conventional phone will suffice), nor does the PC always need to be switched on. New hardware products also make it possible to use both VoIP and a conventional fixed line at the same time.

Prices for VoIP calls to fixed lines and mobile phones are similar to normal call prices. In addition, there are cooperative ventures between VoIP providers that make it possible for their customers to call each other free of charge.

At the end of 2004, there were an estimated 500,000 people who possessed the necessary hardware or software to use VoIP services. Around half of these were regular users of VoIP.

Cable TV and digital video broadcasting markets

Cable TV
Companies in this segment are currently focusing on expanding digital TV coverage and upgrading their networks to provide return channel capability – a pre-requisite for additional services such as Internet access and telephony. Their aim is to enhance the appeal of cable connections in order to secure their customer base in the face of growing competition from satellite providers and new digital video broadcasting services (DVB-T). By year's end, there were 145,000 customers who used their cable connection for broadband Internet access, while some 48,000 obtained their telephone service via the same route. Both these figures are more than double what they were the previous year. It is expected that the cost of upgrading the cable network infrastructure will encourage operators at network levels 3 and 4 to work more closely together, and will probably lead to further mergers in the future.

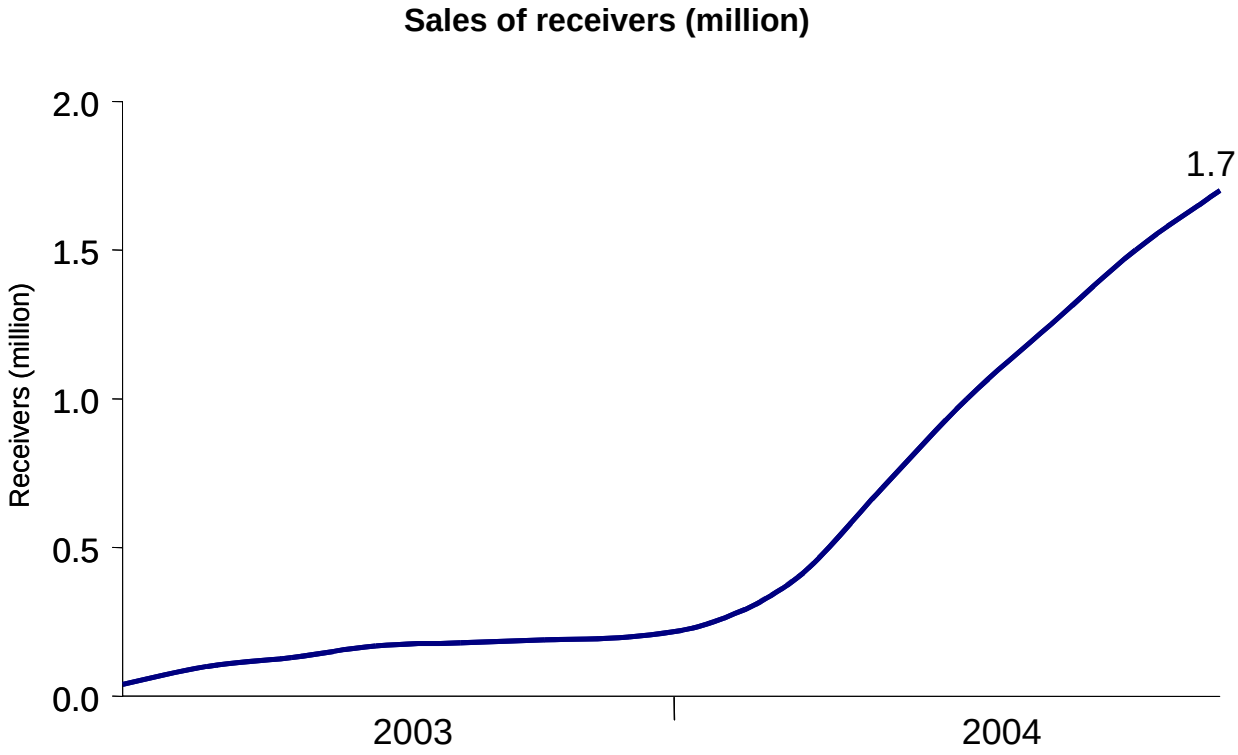
Digital video broadcasting (DVB-T)
The year under review witnessed the successful expansion of the digital video broadcasting service. The operational launch of the transmitters and the switchover from analogue to digital proceeded far more quickly and smoothly than had been anticipated a year ago. By the end of 2004, there were already 39 million people – almost half of Germany’s population – able to receive DVB-T through a rooftop antenna. The service is to be extended to the remaining large urban areas in the course of the next two years.

DVB-T reception in Germany
(as of December 2004)

Source: DVB-T projects in Germany

DVB-T technology, which permits portable and even mobile reception, is proving popular with consumers. Its popularity is reflected in the strong demand for digital receivers, sales of which have now topped 1.7 million[21]. This figure includes set-top boxes for TVs as well as hardware for desktops and laptops.

[21] Estimate from *Deutsche TV-Plattform*, an association of companies, government bodies and research institutions that promotes advances in television technology.



Digital television already allows users with an antenna to receive up to thirty channels with optimum picture and sound quality. Both stationary and mobile reception is possible, while in future providers will also be able to transmit all other types of broadband data and information, presenting the prospect of new multimedia applications. In addition, DVB-T will be joined by DVB-H (digital video broadcasting handheld), a new transmission standard for small, portable devices. DVB-H, which promises to turn mobile phones into portable TVs, is undergoing initial field trials in two Berlin-based projects. A complex fusion of digital broadcasting, mobile phone technology and the Internet is thus opening up new possibilities and new markets that will radically alter the television landscape.

Cooperation with the European Commission

Cooperation with the European Commission consists in meeting the reporting requirements and participating in the activities of the Communications Committee (COCOM). The reporting requirements were mainly concerned with collecting data for the Leased Lines Report 2003 and the European Electronic Communications Regulation and Markets 2004 (10th report). The full text of the report can be found at http://europa.eu.int/information_society/topics/ecomm/doc/all_about/implementation_enforcement/annualreports/10threport/com20040759de.pdf.

Cooperation with other regulatory authorities

International cooperation with other regulatory authorities was stepped up with fact-finding visits to RegTP and an exchange of experience on all aspects of regulation. Also, questions on RegTP's organisation and cooperation with other institutions and authorities at national level were addressed.

Numbering

RegTP was given responsibility for administering and allocating telephone numbers in Germany when the telecoms market was opened up to competition in 1998. The aim is to provide non-discriminatory access to number resources and to make sure there are no bottlenecks in availability in any of the number ranges. Structuring the numbering space, drawing up the allocation rules, setting the conditions of use for the various number ranges and allocating numbers to network operators, service providers and consumers are the main tasks.

An overview of the total number of allocees and allocated number blocks in the 5,200 local networks and of allocated telephone numbers for value added services, directory enquiry (DQ) services, long distance carriers, user groups, innovative services and of the type and number of technical numbers is given in the tables below. Work in 2004 focused on plans for the provision of suitable number resources for VoIP services. Also, the number "116 116" for the blocking of electronic authorisations (eg credit cards) was allocated after tender.

Numbers allocated

Geographic number blocks were in greater demand than ever in 2004 amid a slight decline in the number of allocees:

	2004	Total at year's end 2004
Geographic blocks of 1k numbers allocated	11,440	80,283

	Year's end 2003	Year's end 2004
Allocees of geographic blocks of numbers	76	74

Value added services include freephone 0800, shared cost 0180, premium rate 0900, personal numbers 0700 and dialler 09009 premium rate services. The number of telephone numbers allocated in 2004 and the total number allocated at year's end 2004 can be seen in the table below:

	Allocated in 2004	Total at year's end 2004
0800	10,423	167,362
0700	6,218	99,956
0180	11,517	127,724
0900	3,304	83,621
09009	723	1,383

Particularly important are the numbers for DQ services and the carrier selection codes:

	Allocated in 2004	Total at year's end 2004
Nos for DQ services	8	79

	Allocated in 2004	Total at year's end 2004
Carrier codes	8	97

Allocations for telephone numbers and technical numbers were as follows:

Nos for	2004	Total at year's end 2004
User groups	7	29
International virtual private networks (IVPNs)	5	52
Innovative services	0	7

	2004	Total at year's end 2004
National signalling point codes (NSPCs)	54	2,399
International signalling point codes (ISPCs)	15	391
Portability codes	15	197
Closed user group interlock codes (CUGICs)	1	23
Charging reference branches	16	125
Equipment manufacturer codes for telematic protocols	1	16
Notification of international carrier codes (ICCs)	2	12
Individual TETRA subscriber identity (ITSI)	1	7
International mobile subscriber identity (IMSI)	1	22
Data network identification codes (DNICs)	0	17

Provision of suitable number resources for VoIP

Provision of national numbers

The *Rules for the allocation of national numbers* in the 032 range were published on 24 November 2004. Essentially, national numbers are defined in the same way as local numbers, but – like mobile numbers – do not have geographic significance. Under the published rules, telephone service providers can now apply for national numbers in blocks of 1,000 (1k). The first allocations were set for the beginning of 2005. Thanks to their geographic independence, national numbers allow service providers to offer new features and, in particular, can be retained by end users when they move. Moreover, service providers can cater to customers in any part of the country without being reliant on geographic numbers from each of the 5,200 local networks.

Adapting the rules to accommodate geographic numbers

Depending mainly on their marketing plans, VoIP providers will also need traditional local numbers in addition to non-geographic numbers. This will be the case particularly when customers want to replace their customary telephone service with a VoIP service. Key elements have therefore been drawn up to adapt the allocation rules for geographic numbers:

- The geographic significance of local numbers defines the purpose of these numbers and should be kept.
- The criterion for geographic significance today is the location of the line. In future, the place of residence or place of business will determine the geographic area.

- Eligible to apply, in the medium term, will be not just network operators but all providers looking to offer customers access to the public network by means of local numbers. Providers should be required to be interconnected with the public network directly or via a contracting party and to take part in the exchange of porting data.
- It should be possible to apply for blocks of 100 instead of 1k numbers. This would use numbering space more efficiently and providers would have lower charges to pay.
- Arrangements to determine customers' number requirements will be put in place for VoIP services as well.
- Nomadic use will not be regulated by way of numbering.
- Porting must be possible.

Market players were given the opportunity to comment on the key elements in oral and written proceedings. Amended allocation rules are to be published once the comments have been evaluated.

Award of the golden number "116 116"

A tender was issued on 20 October 2004 for the number "116 116". This golden number will enable electronic authorisations for EC cards, credit cards, mobile phones, health insurance cards, staff ID cards and diverse other cards to be blocked immediately through a central office. Access to the service will also be possible from other countries. Allocation by RegTP is solely a decision about the right to use the number. Its implementation and operation of the centralised service are the responsibility of the allocee, who must have the arrangements in place by mid-2005.

Telecommunications Act 2004 as the new regulatory framework

The TKG 2004 is the transposition of the new **EC regulatory framework for electronic communications networks and services**, the purpose of which is harmonised regulation of (tele)communications. The main new points of the TKG 2004 are as follows:

Closer alignment with general competition and commercial law, as evidenced by **abolition of the licensing requirement**. This facilitates access to the market. Just the use of public ways for the installation of telecommunications lines still requires **transfer by RegTP of the rights of way** (cf RegTP Official Gazette 15, 28 July 2004, pages 785-787).

Commercial providers are subject to a **notification requirement** only. To avert breach of duty, RegTP can take action against providers "after the event", as it were. These **ex post measures** are detailed in section 126; these range from requesting the undertaking to state its views, issuing orders and imposing financial penalties right up to prohibiting an operator's activities as the ultimate sanction.

The heart of the TKG 2004 is **market regulation**. Market regulation kicks in when markets have entry barriers, do not tend towards effective competition within the relevant time horizon and the application of competition law alone would not adequately address the market failure(s) concerned. Market regulation decisions are made, as before, by the **Ruling Chambers**. Market regulation must be preceded by **market definition** and **market analysis** which serve respectively to identify the

relevant markets and to determine significant market power (SMP) in these markets. In defining and analysing markets RegTP must give interested parties, the regulatory authorities of the other Member States and the European Commission the opportunity to make representations **(consultation and consolidation procedure)**. It must take the utmost account of any representations from the Commission and the national regulatory authorities. The European Commission has a **veto right** in respect of identifying relevant markets and determining the presence or absence of market power.

The remedies applicable as a result of the presence or absence of SMP no longer derive directly from the legislation but are determined by **regulatory order**. Accordingly, RegTP can impose, as it sees fit, a prohibition on discrimination (section 19), a transparency obligation (section 20), various access obligations (section 21), accounting separation (section 24), rates regulation for access services and facilities (section 30) and for retail services (section 39), carrier selection and carrier preselection (section 40) and the offer of a set of leased lines (section 41).

As regards **access regulation,** explicit provision is now made for RegTP to require SMP undertakings to offer **unbundled broadband access,** that is to say **bitstream access**. Detailed arrangements on access to **single billing** services are included in the list of possible obligations on SMP operators. The provision on **resale** that previously appeared in section 4 of theTelecommunications Customer Ordinance, or TKV, has been included in the list of possible access obligations. Until 30 June 2008, SMP undertakings can be obliged to provide bundled resale only, ie wholesale line rental only in conjunction with calls. From 1 July 2008 RegTP can then also order unbundled resale.

As regards **rates regulation,** RegTP must see that measures in their entirety are coordinated (**consistency requirement**). Rates are mainly regulated for **access services and facilities**, whereby access and rates orders can be issued together. Rates that are subject to **ex ante approval** may not exceed the **costs of efficient service provision**. In the case of **ex post controls**, any **anti-competitive conduct** by a company in levying and agreeing rates is investigated. Examples of anti-competitive conduct (dumping, margin squeeze, objectively unjustified bundling) are given. **Ex ante approval** of the rates for access services that an **SMP undertaking** is mandated to provide is required as a general rule. **Ex post controls** are made, despite mandated access services, when the operator in question does not also, at the same time, have significant market power in the retail market in which he is active (**dominance in both markets**). An SMP undertaking's rates for non-mandated access services are also subject to ex post controls. And **ex post price controls** are also envisaged for **operators without significant market power** but that control access to end users (eg alternative access providers).

Rates regulation for retail services is predicated on the obligations on access issues, carrier selection and carrier preselection not being sufficient to secure the aims of regulation. Ex ante approval of the rates is limited, however, to markets in which sustainable competition is not expected to develop in the foreseeable future. An SMP company intending to introduce or change the price for a retail service(s) must, at the same time, submit a corresponding **wholesale offer** to its competitors satisfying, in particular, the requirements of anti-competitive pricing controls. This is

to make sure that competitors are able to offer comparable services in the retail market without delays.

The **control of anti-competitive conduct** has been made more concrete by the inclusion of an all-purpose clause and the provision of examples. Also, telecoms service providers asserting prejudice of their rights can now apply for a decision to be taken on ending the abuse. RegTP's set of sanctions for dealing with anti-competitive conduct has been widened: it can now order **surrender of gain** and payment of a corresponding sum of money from the offending company.

Frequency usage is still contingent on prior frequency assignment by RegTP. Yet **individual assignments** should only be made when the risk of harmful interference cannot otherwise be ruled out, or when they are necessary to secure the efficient use of frequencies. As a rule, there should be **general assignments (authorisations)**. Frequencies in short supply can be obtained by way of an **award procedure**, whereby the auction continues to have priority over the beauty contest. The possibility for an assignee to transfer his frequency assignment to another legal entity is new. Also new is the possibility, under particular conditions, for **spectrum trading**. Spectrum trading is ruled out, however, when the frequency rights were granted under section 2(1) of the old Telecommunication Installations Act or are based on licences granted or frequencies assigned in award procedures conducted under the old TKG. This means, for instance, that it is **not** possible to **trade UMTS licences**.

RegTP's **numbering** powers have been further extended. In justified exceptional cases it can ban certain **categories of dialler,** for instance. To prevent the unlawful use of telephone numbers it can, amongst other things, **withdraw numbers** and **order their deactivation**. These are general powers, no longer limited to a particular numbering space.

Notwithstanding the considerations to provide **redress** by way of cartel law, it was decided that the **administrative courts** should keep jurisdiction for the time being. With reference to Chamber decisions, however, this means limitation to a twin-track procedure and, in cases of temporary relief, to a single-track procedure in order to speed up proceedings.

Finally, as regards **transitional provisions**, it is noteworthy that findings of dominance made by RegTP under the old TKG and the attendant obligations remain in effect until replaced by new decisions taken under the TKG 2004.

Additions to the data protection legislation
The new TKG contains several new additions concerning the **privacy of telecommunications, data protection and public safety** that are important for consumers as well as for network operators and service providers. The main changes are set out below.

Privacy of telecommunications and data protection
Certainly the most visible change in the TKG 2004 is its incorporation of the Telecommunications Data Protection Ordinance (TDSV). Thus the personal data of telecoms subscribers and users are protected by law in the new sections 91 to 107 of the TKG instead of just by ordinance. At the same time, the arrangements have been simplified and streamlined by bringing together the provisions of the longest section

of the old TKG (section 89) and of the TDSV to form a unified whole. But here in particular there are some interesting new arrangements.

Use of customer data for subscriber advisory purposes, direct marketing and market research

Under section 95(2) of the TKG 2004 the following applies as regards the use of customer data collected for contractual purposes: service providers may only use customer data for advisory purposes and for direct marketing when customers have given their consent. More recently, however, they can use the telephone number and postal address (including the electronic address) of a customer with whom they have an existing contract, to transmit text and picture messages for advisory and direct marketing purposes, unless the subscriber has objected. Customers must, however, be given information in clearly visible and well readable form when these data are first collected and each time a publicity message is sent that they can object at any time, in writing or electronically, to the dispatch of further messages. This means that service providers must draw the attention of their existing customers to this new possibility and set and observe a time limit within which they can object. Only when the time limit has elapsed and the customer has not objected can the data be used in the manner described.

Storage of traffic data in full as the norm

There has also been a major change as regards how service providers store traffic data (previous term: call data). Whereas the last three digits of every telephone number were deleted when the number was stored, the principle of storage in full now applies under section 97(3) of the TKG 2004. This is to make sure that the full number is available in the event of complaints about amounts billed. However, customers do have the option of having the last three digits deleted, and even of having all the traffic data deleted once the bill is sent. Service providers must inform their customers of these options. This amendment in the law does not affect the form of itemised bill chosen by the customer, however, but concerns only the internal storage of the traffic data at the bill-issuing service provider's.

Restricted reverse search

In certain circumstances, directory enquiries allows a reverse search. Previously, it was only possible to obtain the telephone number and, possibly, the address of subscribers known by name. Now, section 105(3) of the new TKG makes provision for – in reverse – the name and address of subscribers to be obtained on the basis of their telephone number. The precondition is that the subscriber's data are included in a telephone directory or a public electronic directory and that subscribers have not objected to information being obtained in this way.Service providers offering a reverse directory service must also inform their customers of this right to object.

Location data

A new arrangement is the use of location data for the provision of value added services (section 98 of the TKG). The customer's consent is necessary for these new location-based services. It must be possible for customers to withdraw their consent at any time and to prevent identification of their location on a temporary basis. In the case of emergency calls, however, it must be possible to transmit the location data in the absence of consent so that persons seeking help can be localised.

Public safety
The chapter on public safety now includes arrangements on access to emergency services (in section 108 of the TKG 2004). These require network operators to transmit caller location information to local emergency service centres so that the whereabouts of a mobile caller can be identified. Section 111 of the TKG 2004 now makes definitive provision for service providers to collect name and address and date of birth data on mobile phone subscribers choosing the prepaid option.

Return of Mobilcom's UMTS/IMT-2000 spectrum

UMTS licence holder Mobilcom Multimedia GmbH informed RegTP on 23 December 2003 that it was relinquishing the rights from its UMTS licence and its frequency assignments with immediate effect. At the same time it reserved the right to make further claims in relation to the licence grantor.

Mobilcom's decision reflected the fact that it was no longer looking to meet the coverage requirement of 25 percent of the population by 31 December 2003, one of the licence conditions.

After studying the matter RegTP concluded that Mobilcom's implied compensation claims were unfounded. The Federal Republic of Germany, as the licence grantor, had met all the commitments it entered into during the auction process, whereas Mobilcom had renounced its rights as a result of its own business decision. The licences themselves, and the general legal situation, made no provision for compensation in the case of relinquishment of this nature.

Following the return of the frequencies, RegTP announced that it would hold a public consultation to clarify what should be done with the spectrum.

Basically, there are three options:

- Award, following a consultation, to the current UMTS licence holders (for use as complementary frequencies);
- Award, following a consultation, to a newcomer, the current UMTS licence holders being excluded;
- Making the frequencies available at the same time as the UMTS extension bands, use of which will begin in 2008, instead of now.

As no applications for spectrum or declarations of interest from the market have been received and there are no immediate requirements for extension bands, RegTP decided to hold the public consultation after reviewing the coverage requirements.

Surveys of demand
RegTP in November 2003 for the first time published a complete Frequency Usage Plan under section 46 of the TKG 1996. The Frequency Usage Plan was drawn up under the procedure set out in the Frequency Usage Plan Ordinance (FreqNPAV) with the participation of the federal government, the federal states and interested sections of the public.

The Plan comprises a set of tables detailing frequency usages in Germany in the 9 kHz to 275 GHz range. It consists, in all, of 462 subplans for the separate bands in

the Frequency Band Allocation Ordinance (FreqBZPV) and supplies information on the bands allocated to the different services, on the usage provisions in the Ordinance and on the usages permitted in the subbands and their conditions of use.

Printed copies of the Frequency Usage Plan can be ordered from RegTP; for further information go to http://www.regtp.de (English pages) ⇨ Telecoms Regulation ⇨ Frequency Usage Plan.

The need for suitable bands for different services has grown strongly over the last few years for a number of reasons; thus the planning processes will need to consider technical/regulatory and competition issues in greater depth in future.

Judicious frequency planning requires the early initiation of decision-making processes. Reallocation concepts should then be drawn up, based on a regular exchange of experience between the industry, interest groups and administrations.

In this connection, as preparation for the first update of the Frequency Usage Plan, RegTP has decided to conduct a survey among interested sections of the public on particular usages and subbands in the Plan.

In Communication 238/2004 in its Official Gazette 15/2004 RegTP therefore published the following four surveys of demand:

- Changed usages in the subbands of the former B mobile network;
- Future demand for frequencies for radio applications for public railways;
- Future demand for frequencies for telemetry;
- Future demand for frequencies for wireless cameras.

Interested parties were invited to send their proposals to RegTP, providing particular information as a minimum. The 26 responses received, the outcome of the evaluation and RegTP's conclusions were posted on its website at www.regtp.de and published in its Official Gazette 1/2005 in Communication 7/2005.

In essence, the conclusion was that RegTP would consider whether the subbands of the former B mobile network could be made available without restrictions, with maximum flexibility in the conditions of use. More details will be given in the draft update of the Frequency Usage Plan.

Another survey of demand in the subband 2010.0 – 2019.7 MHz was launched in Official Gazette 22/2004 in Communication 365/2004.

As a result of an ERC Decision aimed at European harmonisation of spectrum use for UMTS, two TDD blocks in the band 2010 – 2020 MHz were identified for self provided applications (SPAs). This band was not therefore available for national award of the UMTS licences. Market development of the SPA applications did not materialise, however, and there are currently no activities of any sort. This is borne out by a survey made by the European Commission among the Member States.

The issue is now being debated in various European spectrum management bodies with a view to making the band available for new applications. This survey of demand

is to provide preparatory material for discussions in the CEPT and EU bodies on the future use of this harmonised band.

The five responses received were posted on the website at www.regtp.de. Evaluation of the proposals is still ongoing. RegTP will use the results to clarify its stance in the relevant CEPT and EU bodies.

RegTP will incorporate the European decision on use of the subband for new applications in its draft amendment of the Frequency Band Allocation Ordinance and in its Frequency Usage Plan.

As envisaged in the procedures for drafting and updating the Frequency Usage Plan, set to begin in the first quarter of 2005, the draft will be made available to the public so that they can make proposals and express any concerns they might have; those who have made proposals in response to the surveys of frequency demand may use this opportunity to submit comments again, if appropriate.

Coverage checks in the UMTS networks
After the auction for the UMTS licences in summer 2000, it was time in 2004 to check compliance with the coverage requirements.

The six UMTS licence holders had committed, when the licences were granted, to securing coverage of at least 25 percent of the population by 31 December 2003. To check compliance, RegTP drew up a two-stage test and set the applicable technical coverage parameters. Previously, the UMTS licence holders had been given the opportunity to state their views, orally or in writing, on RegTP's test plans.

After Mobilcom Multimedia GmbH returned its UMTS licence to RegTP in December 2003, the five remaining licence holders were requested, under the test, to submit their coverage maps with reference to these technical coverage parameters. First of all, theoretical coverage was computed for each licence holder on the basis of the maps submitted. Then, in a second step, the information on the respective maps was verified in three selected reference areas in each of ten regions. The review was completed in summer 2004. The measurements showed four UMTS licence holders to be meeting their coverage requirements in part well in excess. Yet it was also established that one licence holder had not built up a network, in breach of the licence requirement. The necessary legal and administrative steps were thus initiated by RegTP in the second half of 2004.

The UMTS licence holders now have to secure coverage of at least 50 percent of the population by 31 December 2005.

Assignment of wideband PAMR spectrum
In December 2003 the key elements for the assignment of frequencies for wideband PAMR in the paired 450.00 – 455.74 MHz and 460.00 – 465.74 MHz bands were published in RegTP's Official Gazette, opening a consultation. After evaluating the responses, the President's Chamber decided in February 2004 on a two-stage award procedure. Accordingly, applications could be made for assignment of frequencies. After receipt of one application, however, it was thought to open a process by publication in the Official Gazette under which all market players could apply for frequencies for wideband PAMR within a specified period. In the first instance, one

company submitted applications for 24 regions. Another 24 regional applications from another company were received within the set period. The applications were considered with a view, in particular, to the subjective requirements for assignment such as specialist knowledge, reliability and efficiency. The frequency usage concepts submitted were also examined and assessed.

In line with key element 8 of the assignment of frequencies for wideband PAMR, confirmed in the President's Chamber decision, only the minimum package was awarded. Inquam Deutschland GmbH and T-Mobile Deutschland GmbH were both assigned spectrum for 24 regions. The number of regional assignments will allow both companies to offer wideband PAMR throughout Germany, mainly for internal business use.

Allocation-driven fees and contributions
In light of the new TKG, of the experience gained with application of the current Frequency Fee Ordinance and Frequency Usage Contributions Ordinance and of allocation regulations as such, the individual charge items of the two Ordinances were subjected to close scrutiny by a working group that included experts from all the radio services. Corrections and amendments were worked out and compiled in a final report. As frequency allocation is not a static, but a dynamic, field the relevant Ordinances are likely to need frequent critical review and, possibly, adaptation in order to reflect allocation practice.

Transfer of rights of way following abolition of licensing
As a result of Article 3(2) of the Authorisation Directive (Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services), all activities previously subject to licence under section 6 of the TKG 1996 no longer need special authorisation in the form of a licence from RegTP. As from 25 July 2003 therefore, no more section 6 licences were granted. The new requirement was transposed into national legislation by the TKG 2004.

Under section 150(3) of the TKG frequency assignments and rights of way granted under section 8 of the TKG 1996 remain in effect. This protection for rights of way covers licences for the operation of transmission paths (licence classes 1, 2 and 3). Only the actual holders enjoy the right of use. Transfers of existing rights of way – as were possible within the scope of licence transfer under the TKG 1996 – are no longer provided for. Where non-identity-preserving transformations (such as spin-offs) are concerned, rights of way must, under section 69 of the TKG 2004, be applied for, otherwise there is a case of special use.

Since the licensing requirement ceased to apply, the right to use public ways free of charge is transferred separately, upon application. A list of all the holders of rights of way is posted on the English pages of RegTP's website at www.regtp.de ⇨Telecoms Regulation ⇨Licences and Rights of Way. This listing also provides information for the authorities responsible for the construction and maintenance of public ways, as required by section 69(3) of the TKG. Upon request, these authorities can receive more detailed information from RegTP's specialist section. At the end of November 2004 there were 712 companies holding rights of way.

Spectrum management

For every industrial country, the balanced and efficient use of spectrum is a major infrastructural prerequisite. Some examples of RegTP's spectrum management responsibilities are set out below; many are both conceptual and executive in nature.

Frequency band allocation
The draft for a new Frequency Band Allocation Ordinance was drawn up on the basis of the results of the 2003 World Radiocommunication Conference (WRC-03). The main changes to allocations concerned the radio navigation satellite system GALILEO and wireless local area networks (WLANs) in the 5 GHz band. Additional spectrum is envisaged for the broadcasting service and the amateur service in the shortwave band. Possible use, under certain conditions, for ISM equipment (equipment for industrial, scientific, medicinal, domestic or similar purposes, for example, heating by means of radio frequency energy) outside the regular bands was proposed to the Federal Ministry of Economics and Labour (BMWA).

2007 World Radiocommunication Conference preparation
As the only body authorised to amend the Radio Regulations, WRC-07 will again have important decisions to make on spectrum utilisation at global level. Just two examples of the issues to be addressed are International Mobile Telecommunications - 2000 (IMT-2000) / Universal Mobile Telecommunications System (UMTS) and further developments and additional frequency bands for aeronautical telemetry and aeronautical radio. The preparations, in particular organisation of the European activities within the European Conference of Postal and Telecommunications Administrations (CEPT) for WRC-2007 and cooperation between the working groups of the Electronic Communications Committee (ECC), the Conference Preparatory Group (CPG), the Frequency Management (FM) and Spectrum Engineering (SE) groups, were begun in 2004 with input from RegTP. Preparations also cover representation of European interests at meetings of the working groups in the Radiocommunication Sector of the International Telecommunication Union (ITU-R) in Geneva. The CPG has set up four project groups, each responsible for particular items on the agenda.

CEPT coordinators have been appointed for the agenda items. RegTP has provided three CEPT coordinators, and continues to have a presence both in the CPG and in all the project groups, thus safeguarding German spectrum management interests.

A national group has again been set up under the leadership of the Federal Economics Ministry to prepare the German positions. The "downstream" groups tasked with the details are headed by RegTP and are open to interested professionals.

2004 Regional Radiocommunication Conference
The ITU RRC in 2004 was the first of two sessions (the second is scheduled for 2006) convened to develop the technical and regulatory basis for the new digital broadcasting plan for Europe, Africa and parts of Asia.

A uniform environment for digital terrestrial broadcasting based on digital video broadcasting – terrestrial (DVB-T) and terrestrial digital audio broadcasting (T-DAB) was created for the entire planning area, offering excellent prospects both for an

efficient new digital broadcasting plan and for the economic introduction of the two services in a large, single market in the interests of customers, manufacturers and operators alike.

One of the most important technical outcomes was that all the planning parameters and protection criteria for DVB-T und T-DAB proposed by CEPT – and in whose definition Germany played a major part – were adopted essentially unchanged.

Likewise, the entire planning philosophy advanced by CEPT and favoured by Germany, the planning criteria included, was taken up in the Conference report.

RegTP continues to be actively involved in the preparations for the second session of the RRC in 2006.

European harmonisation
The CEPT Electronic Communications Committee (ECC) is responsible for radio and spectrum matters within Europe. It has a number of permanent working groups and project-oriented groups set up for specific work items. RegTP was actively involved in framing the CEPT-wide conditions for frequency use. The arrangements for new and innovative radio applications, in particular, need to be drawn up within a framework of international cooperation in the interest of a European single market.

Of special German interest were the decisions to deploy wideband PAMR and to use short range radar (SRR) to improve traffic safety. Arrangements for wireless local area networks (WLANs) in the 5 GHz band were aligned to WRC-2003 decisions. Also important is further development of the ERO Frequency Information System (EFIS) to promote transparency for market players. Widening the provision of publicly available information on use of the radio spectrum is also sought by the EU package of communications directives. Thus RegTP was able to see major aims pushed through and national procedures secured by the ECC as far as the radio spectrum is concerned.

RegTP also works in the EU bodies created as a result of the Radio Spectrum Decision 676/2002/EC. The EU's Radio Spectrum Committee issues mandates to CEPT on issues of substance and determines, on the basis of the reports submitted, EU-wide technical implementing measures. Unlike ECC decisions which are binding on signing administations only, these implementing measures are binding on all EU Member States and thus enhance legal certainty for telecoms providers, manufacturers and users alike.

In 2004, mandates were issued to CEPT on IMT-2000 / UMTS, short range devices (SRDs), WLANs, short range radar (SRR), UWB (ultra wideband) and the former ERMES bands (European radio messaging system). Commission decisions on short range radar in the 79 GHz and 24 GHz bands were adopted.

Another field of activity in European Commission bodies is work in the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM), where RegTP addresses the regulatory aspects of European spectrum harmonisation. In drawing up the air interface descriptions subsequently notified to the Commission, RegTP makes sure that the regulatory aspects of the spectrum are addressed so as to secure harmonised, fair opportunities for providers in the

European market while guaranteeing national and CEPT-wide efficient and interference-free use of frequencies.

Frequency assignment
It was also necessary in the year under review to make economic use of the limited resource "spectrum". This regulatory task necessitated a raft of measures to secure the efficient and interference-free use of frequencies, notably by the administrative act of frequency assignment and determination of the general or specific parameters and conditions of use for the particular application, with the various types of assignment reflecting the particular features of the particular usage.

In this connection subsections (2) and (3) of section 55 of the TKG, which derive from Article 5(1) of the Authorisation Directive (Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services), must be heeded. These state that general assignment is the rule, and only when general assignment is not possible are frequencies assigned by individual authorisation. This is the case in particular "when the risk of harmful interference cannot otherwise be ruled out or when this is necessary in order to secure efficient use of frequencies". General assignments, as far as possible, were also the norm in the past. General authorisation has thus been given for many radio applications, eg wireless headphones, Bluetooth, electronic immobilisers, inductive applications, WLANs. Explanatory notes on issuing general assignments were published in RegTP's Official Gazette 14/2003 (Communication 193/2003) on 16 July 2003.

Also in 2004 a number of general assignments were adapted and new ones issued, typically as a result of initiatives from the CEPT Electronic Communications Committee (ECC) harmonising particular usages across Europe or changing the parameters and conditions of frequency usage for already harmonised applications. Consequently the general assignments for identification purposes, inductive radio applications and medical implants had to be adapted. General authorisation was also given on this basis for wireless microphones (29.7 – 47 MHz) and automotive short range radar equipment (79 GHz). Inductive train control systems and radio for mining operations were also generally authorised.

The general assignments and the explanatory notes on administrative practice can be viewed in full (in German only) on RegTP's website at *Regulierung Telekommunikation Frequenzordnung Allgemeinzuteilungen*.

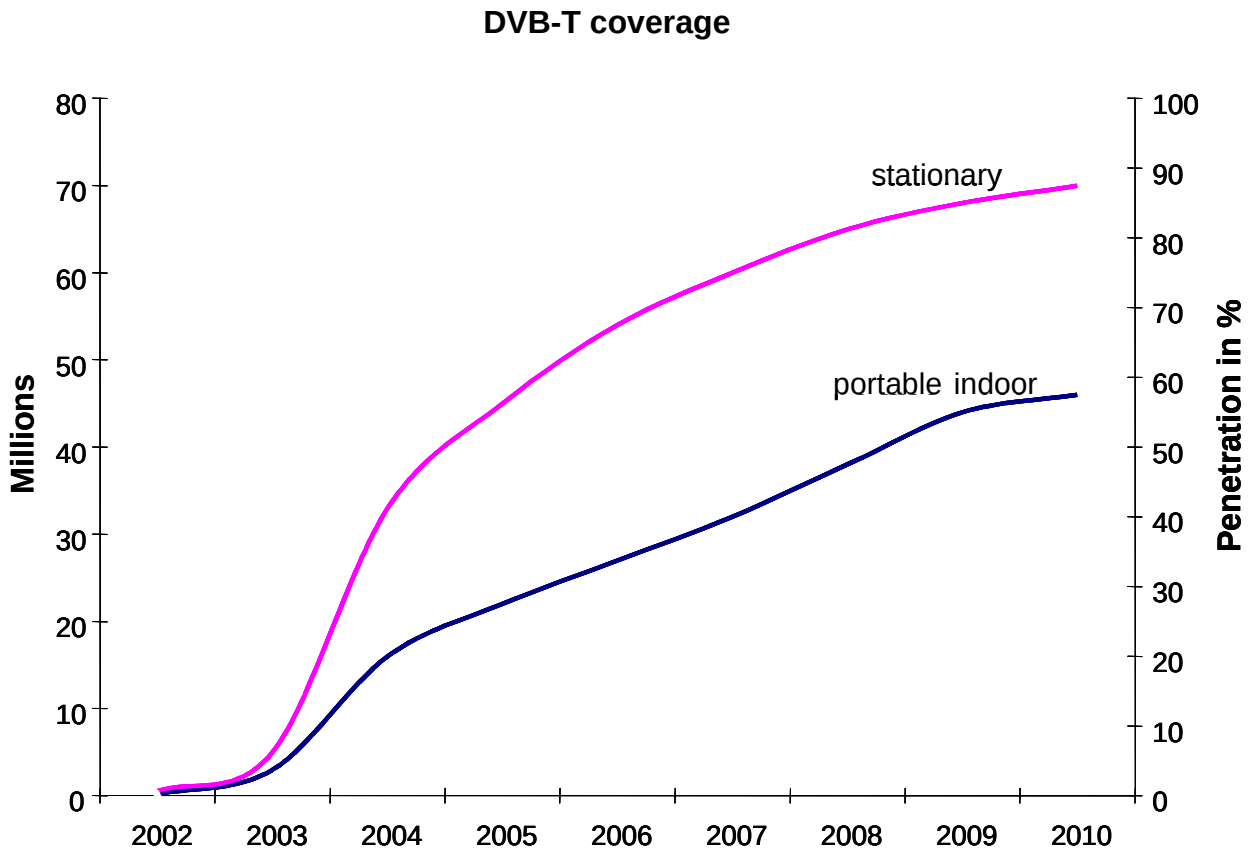
Frequency assignments for innovative radio applications
In 2004 some 600 frequency assignments for developing and testing new technologies and for research projects, for instance, were issued under section 58 of the TKG. Assignments for innovative and experimental radio services may be at variance with the specifications of the National Table of Frequency Allocations and the Frequency Usage Plan, but variant use must not be allowed to degrade the services and usages included in the Table and the Plan.

The new developments in 2004 focused on:

- testing the first UWB local environment monitoring systems in the range to 10 GHz;
- further testing of UWB automotive radar in the 24 GHz band;
- developing electronic anti-theft systems in the 866 MHz band;
- IP-based operation of the first prototypes for wireless access / networking of telecoms end customers in the 3.5 GHZ band (Worldwide Interoperability for Microwave Access (WIMAX)).

DVB-T coverage

DVB-T was introduced in 2004 in further centres of population, including the Rhine-Main area, Cologne/Bonn and Hamburg-Lübeck. The Nuremberg, Munich, Leipzig/Halle and Erfurt/Weimar regions are scheduled to follow in 2005. RegTP estimates that DVB-T coverage, until the last analogue transmitter is switched off in 2010, will progress as shown on the chart below. A distinction is made between two kinds of reception, portable indoor (with a small rod antenna in the home) and stationary (with a rooftop antenna, as hitherto).



DVB-T is a digital data transmission technology. As such, it allows not just the reception of up to 30 TV channels with excellent sound and picture quality, but also the transmission of every other kind of broadband data and information. Portable and mobile reception, the capability that led to the "TV anywhere" caption, augmented by return channel capability, opens up new vistas for service providers. Feasible are business and leisure applications, applications for travellers with information on traffic

and road conditions, on sightseeing, where to eat, and the weather. DVB-T will provide the opportunity, once portable devices have been developed, for users to have a combination of TV, Internet and multimedia information of every kind, at any time, no matter where they are.

Broadcasting
RegTP in 2004 processed the following frequency assignments for broadcasting services:

224 for VHF,
371 for HF,
4 for MF,
42 for TV,
142 for T-DAB,
210 for DVB-T.

Terrestrial digital audio broadcasting (T-DAB)
In 1999 already, RegTP and the regional authorities initiated the transition to T-DAB. Altogether, a total of 1,473 assignments, 1,234 for commercial T-DAB operation in Germany, were made between 1998 and the end of 2004.

Terrestrial digital video broadcasting (DVB-T)
In its Determination of 20 March 2002 (Order 6/2002) the President's Chamber specified key elements for DVB-T spectrum award. In the year under review, 29 frequency assignment proceedings, including ones for the federal states Lower Saxony, Schleswig-Holstein, Mecklenburg-Western Pomerania, Hamburg, Bremen, North Rhine-Westphalia and Bavaria, were successfully completed. In the assignment proceedings for the states Baden-Württemberg, Hesse, Rhineland Palatinate and Saarland, demand outstripped supply for the first time, necessitating competitive proceedings. In these, RegTP had to select the best placed applicant on the basis of the criteria specified in the legislation – specialist knowledge, efficiency, suitable planning, and promotion of sustainable competition in the market. Assignment proceedings were opened for four further notified coverage areas in the states Saxony, Saxony-Anhalt and Thuringia. Completion of these proceedings is expected in early 2005.

Satellite communications
In 2004 there continued to be lively interest in Germany in satellite-based transmission. In many areas in the country where terrestrial-based communication – broadband, in particular – is not sufficiently available, satellite delivery will remain a good option for quite some time. Satellite systems cover large areas and link up remote districts. Given the large number of satellites in operation, there are plenty of transmission options, available at short notice and offering flexible use.

In the German telecoms market, satellite-based transmission paths provide an economic alternative to terrestrial transmission paths in some areas. Satellite-delivered Internet access is becoming more and more common, mainly for business applications at present. The use of satellite-based transmission paths is also necessary for satellite news gathering, or SNG, for on-site reporting.

Frequency usage for earth stations
Under the EC package of directives, individual assignment is needed for the frequency applications of earth stations in bands shared with other services (radio relay, as a rule) and for those of earth stations near airports. In each case a frequency and location coordination procedure must be carried out, and near airports a study of compatibility with the electronic systems of aircraft, so as to secure interference-free and efficient co-existence of the different applications.

RegTP in 2004 issued 139 individual assignments for transmitting earth stations. Usually, these were larger stations for point to point transmissions (eg to route Internet traffic and for transmission paths in areas experiencing conflict) and for the provision of wide area coverage (eg for TV programmes).

Assignments for satellite networks
Satellite earth stations are often operated as part of networks. These comprise, as a rule, a number of terminals whose frequency usage is monitored and controlled mainly by the network operator. The end customer (eg the user of a VSAT terminal) has no influence of any kind on the frequency-related properties of the terminal. This would suggest that the operator of the satellite network be assigned frequencies for the applications of the entire system, thus covering operation of the terminals as well. RegTP follows this approach with VSAT networks, too. Individual VSAT earth stations can be operated simply on the basis of an assignment for a VSAT network and of frequency usage conditions. No further assignment is necessary as long as the VSAT stations comply with technical conditions that render coordination superfluous. The repeal of the VSAT general authorisation (Order 60/2003 in Official Gazette 25/2003) does not affect the end user. VSAT network operators, however, require an assignment for the satellite network specifying, in particular, conditions in relation to international coordination of the satellite system and for the avoidance of interference to aircraft.

RegTP publishes the frequency usage conditions for VSAT earth stations and a list of satellite networks for which assignments have been made in its Official Gazette and on the Internet. The new approach ensures not just the interference-free and efficient use of frequencies, but also linkage of the fees, contribution charges and the provisions of Part 7 of the TKG (Privacy of Telecommunications, Data Protection, Public Safety) to the particular assignee. Thus consistency in the treatment of VSAT, S-PCS and other satellite-based networks has been achieved. This procedure is also consistent with that for terrestrial networks (eg GSM) in which there is likewise assignment to the network operator and no general assignment for the terminals. Additionally in 2004, Reg TP issued four assignments for satellite networks. These were for Space Checker's fleet management system, for a data communications system in Connexion by Boeing aircraft, for Iridium and for Inmarsat. Assignment is imminent for a further seven (VSAT) networks.

International notification and coordination of satellite systems
An addition to the new TKG is section 56 "Orbit Positions and Frequency Usage by Satellites". Upon application, RegTP carries out the advance publication, coordination and notification (filing) of satellite systems with the ITU in Geneva. When frequencies and orbit positions are available, when compatibility with other frequency usages and other satellite system notifications is given and there is no detriment to public interest, the applicant is assigned the rights to orbit and frequency

usage. Only then may the system be brought into use and operated. RegTP also provides support and assistance in the international coordination of orbit and frequency usage rights. In this lengthy international coordination process, RegTP represents Germany's interests and seeks to ensure that frequencies and orbit positions are available for German users. RegTP is also responsible for the protection, under the ITU procedures, of the terrestrial services in the many bands that are shared with satellite services. RegTP submits to the ITU and follows through the filings for an array of projects from firms, institutions and organisations. Currently there are 16 non-geostationary and 39 geostationary satellite network filings in Germany's name. For these filings, lengthy, ongoing coordination activities (up to seven years) are necessary to secure the availability and the compatibility of orbit and frequency usage rights, and these rights then have to be protected over the entire useful life of the system (often more than ten years). In 2004 there were 20 publications in the ITU Circulars for 18 German satellite systems and 265 coordination requests from foreign telecoms administrations in response.

RegTP submitted comments aimed at protecting German satellite filings and terrestrial services against foreign satellite systems in 179 cases in the year under review. In addition, many of the activities in 2004 were concerned with work in committees to provide spectrum for the planned European satellite navigation system GALILEO. RegTP has signed a Memorandum of Understanding on the joint administration of notification rights at European level, a process which it will actively support.

Frequencies for public authorities

Frequencies are also required by a number of authorities for the performance of their duties. RegTP assigns frequencies on the basis of the Frequency Usage Plan and the Frequency Assignment Ordinance to users such as the emergency organisations (BOS), the German air traffic control authorities, the waterways and shipping administration and the railways. Frequencies used by the Federal Ministry of Defence in the bands used exclusively for military purposes do not need assignment by RegTP. Yet assignment by RegTP is necessary for military users such as the *Bundeswehr*, Nato, and foreign armed forces in the bands used for civil and civil-military purposes. The security situation generally and the *Bundeswehr's* international focus keep demand for frequencies at a consistently high level over the entire frequency spectrum. For communications purposes, in particular, off the shelf devices are being used in civil frequency bands more and more, for cost reasons.

In 2004 RegTP processed 77 supportability enquiries from military users (the *Bundeswehr*, Nato, foreign armed forces) and issued 277 frequency assignments (for instance, for visiting ships, manoeuvres, out of area exercises, but also for long term applications) in the civil frequency bands. Conversely, RegTP in 2004 coordinated with the military users a number of frequencies for civil users in the military bands, for instance, in 38 cases for the Foreign Office and in 275 coordination requests (repeaters) for amateur radio relay stations (civil/military band).

Temporary use assignments

Temporary use assignments are issued by RegTP for sporting, cultural and other media events. The frequencies are generally needed only for a few hours or days. The applicants, often from other countries, regularly need frequencies which are used for other purposes in Germany. In these cases RegTP considers whether

temporary use is still possible without detriment to other intended-purpose use. When the events are staged close to the borders, this can be complicated since coordination with the neighbouring countries is also required.

RegTP in 2004 issued a total of 1,668 temporary use assignments. These covered, in all, 8,627 usages in a variety of bands between 146 MHz and 22 GHz for 928 events. Most of the assignments were for motor racing (eg Formula 1 and DTM), cycling and winter sports. To secure interference-free and efficient use of the frequencies RegTP was on site at more than 90 events with its specialised staff and monitoring vehicles.

Many applications for temporary use assignments are expected for the 2005 FIFA Confederations Cup and the 2006 FIFA World Cup in Germany. At many rounds of talks with the Organising Committees for both, agreement was reached on cooperation and the necessary preparatory activities (notably as regards the provision of frequency charts and information on frequency use in Germany, special registration forms and marking equipment in the stadiums).

International frequency coordination for mobile services
Efficient and interference-free use of frequencies along Germany's borders can be secured only by coordinating the frequencies. International frequency coordination procedures and parameters for mobile services are set out in agreements with the neighbour administrations. In 2004, some 4,300 coordination procedures for German and 4,600 for foreign base stations in the mobile service bands between 30 MHz and 470 MHz were carried out. Also, RegTP in 2004 revised and updated coordination agreements with Germany's neighbours. In particular, work began on facilitating use in border areas for wideband mobile systems in the 450 – 470 MHz band.

Thus coordination agreements were signed with Switzerland, Austria and the Czech Republic in late 2004. Similar agreements with Germany's other neighbours are being drawn up. Separately, RegTP in October 2004 concluded an agreement on splitting the 415 – 420 / 425 – 430 MHz band into preferential bands with the administrations of Germany, Liechtenstein, Austria and Switzerland. In the Berlin Agreement technical subgroups RegTP took forward special aspects of frequency coordination (eg electronic data exchange between administrations for coordination purposes). These results will feed into a later revision of the Agreement.

Use of frequencies in and along conductors – usage provision 30
Usage Provision 30 (NB 30) is found in the Frequency Band Allocation Ordinance. Under subsection (1) of NB 30, frequencies may be used freely in and along conductors in bands in which safety-related radiocommunication services are not operated and the interfering field strengths do not exceed given limits. These limits have been set so that, on the one hand, undue interference to frequency usages in free space is avoided under normal operating conditions and on the other, new telecoms processes in and along conductors are not prevented from the outset by the limits being too low. Under subsection (2) of NB 30, frequency usages in and along conductors may not claim protection from interference caused by emissions from radio transmitters. Subsection (3) of NB 30 states that, in relation to frequency usages in and along conductors which do not enjoy the free use provided for in subsection (1), conditions of place, time and technical details may be set by RegTP, for the particular case, either in the Frequency Usage Plan or the required frequency

assignment, on the basis of proportionality and after hearing the parties concerned. It also states that where safety-related radiocommunication services are concerned, particular account must be taken of the extent to which a specific threat to safety is feared. In connection with NB 30 it is becoming clear that potential powerline communication manufacturers and operators, except for a few, are "on the retreat", as it were, or have ceased their activities.

Professional mobile radio

Professional mobile radio (PMR) consists of various non-public applications. A particular distinguishing feature is that it is tailored to users' individual needs, and does not require an external network operator. Despite the steady advance of public mobile services, PMR has consolidated its position as a customised communications medium for closed user groups. Traditionally, the core of PMR has been trunked radio. Trunked radio transmits the internal voice and data communications of, most notably, industrial and commercial users – industrial units and transport companies for instance – and of users in public administration – local authorities and road maintenance departments, for instance. A special offshoot is public safety radio for the police, the fire brigades and the emergency services, for instance. Here, the assignment of frequencies requires the consent of the supreme federal or federal state authorities concerned. Of great importance too is paging. A further subdivision of non-public mobile radio is telemetry and telecommand (remote control, remote data retrieval, transport management systems, warning systems).

To secure efficient and interference-free use of the – mainly regional – PMR frequencies the usage provisions and parameters must be defined in light of the particular purpose of use and local circumstances. Against this background RegTP's regional offices in 2004 processed around 16,500 items (most notably, new assignments, modifications, withdrawals and handbacks). These concerned analogue applications, mainly in the 2 m band. There continued to be a clear increase in the number of assignments using trunked / digital technology in the 70 cm band. These assignments were for relatively large networks for industrial units, transport companies and local authorities.

Fixed point to point links

Demand for fixed point to point links, driven chiefly by their low-cost, flexible implementation, continued to grow strongly in the year under review. Fixed point to point links are used by telecoms service providers to build up modern mobile networks, at present mostly for UMTS/IMT-2000 network rollout and the provision of other infrastructure support. Also, many communications companies use these links to build corporate networks. At the end of 2004 some 61,000 direct links were in operation in Germany. RegTP in 2004 processed a total of around 20,000 applications for new assignments, modifications to current assignments and succession. The volume of applications has thus virtually doubled over the last three years.

In the different bands RegTP currently administers the following number of assignments for direct point to point links (as of December 2004, figures rounded):

4	–	7.5	GHz	6,000
12	–	18	GHz	12,000
		23	GHz	15,000

	26	GHz	9,000
	38	GHz	19,000
Total			61,000

Under its construction planning and immission controls procedures RegTP prepares comments in connection with the installation of wind power plants and other high building works. The aim is to avoid degradation or interference to the operation of direct links as a result of new building works. The requesting offices (public authorities such as local building authorities and district authorities, and private offices such as architects' offices and planning companies) are enabled, through the reports, to reach agreement with any operators affected, in timely manner, on questions of route protection. RegTP in 2004 answered more than 250 requests for assistance and information.

Fixed point to multipoint links

RegTP in 1998 released frequencies in the 2.6 GHz, 3.5 GHz and 26 GHz bands for fixed point to multipoint links for coverage of the so-called last mile. The general economic situation and, in particular, the opening of the cable networks to new telecoms providers meant that a large number of the 1,600 or so assignments issued have not been used. RegTP has asked for the frequencies to be returned. A consultation has given the public the opportunity to state their views on the key elements of spectrum assignment in the 3.5 GHz band. The 3.5 GHz band has become attractive as a result of new advances which are expected to make high speed wireless Internet access a viable economic proposition.

As the geographic density of mobile base stations grows, direct point to multipoint links are becoming a flexible alternative for connecting transmission paths to higher network elements. Frequencies in the 26 GHz band are being used more and more for this and other infrastructure applications.

A large number of transmission paths connecting cells and network nodes are needed for operation of the UMTS networks. Part of the 28 GHz band has been provided for dedicated fixed link use in the UMTS networks, to meet demand. The frequency assignments, issued for a particular coverage area, entitle the holder to operate not just point to multipoint, but point to point links as well.

A ruling on spectrum assignment in the 31.8 – 33.4 GHz band was published in August 2004 with a view to meeting expected further demand for transmission paths for UMTS and other telecoms network infrastructure. These frequencies are available for use as both point to multipoint and point to point links.

Operator certificates and call sign allocations

Participation in the aeronautical and the amateur service requires special knowledge. Thus RegTP holds special examinations and certifies demonstrated special knowledge by issuing operator certificates. In 2004, 6,915 candidates registered to take the aeronautical service exams and around 1,800 to take the amateur service exams.

Admission to the amateur service requires allocation of a personal call sign. The number of admissions and further call signs, allocated for other purposes, in the amateur service are shown in the table below (as of 31 December 2004):

Class	No of admissions and personal call signs	Club stations	No of further call sign allocations			Allocated call signs (total)
			Relays/beacons (experimental ones included)	Special allocations (s 16 AfuV)	Radio operations instruction	
1	41,061	2,346	26	14	596	44,043
2	30,499	169	1,021	0	108	31,797
3	5,822	21	22	0	55	5,920
Total	**77,382**	**2,536**	**1,069**	**14**	**759**	**81,760**

Technical telecoms regulation

Rapid advances in telecoms and the resultant economic impact mean that techical telecoms regulation must be constantly reviewed. Amid the increasingly rapid convergence of services, networks and technologies, voice telephony and VoIP, or ADSL TV, for instance, and the blurring of the boundaries between telephone networks, data networks and the Internet, interoperability between the different media, the different networks and the different communications devices is gaining importance. The "digital revolution" and the accelerated pace of development of new communications systems show that the industry is prepared for growing globalisation.

A crucial regulatory task is to provide orientation in an increasingly complex world. Standards and specifications continue to play an important part in taking telecoms forward. Service integration in a single network has long been an aim for regulators, scientific and research experts and the industry alike. ISDN and ATM technology were both developed with this in mind. Yet these developments were overtaken by the explosive growth of Internet technology. Thanks to broadband access and backbone networks based on the Internet Protocol standard and to a raft of new protocols, data as well as voice and images can now be delivered over a single network infrastructure. This appears to be the platform of the future.

If, one day, a basic set of telephone services is offered in an IP network, additional technical measures will be needed to meet the regulatory requirements. Crucial infrastructures such as water and power supplies, telecoms, banking, emergency services and so on depend more and more on supporting information and communications systems if they are to work properly. In pursuance of a particular RegTP aim, amendments to international signalling specifications were made, allowing persons with particular entitlements to be treated with priority in emergencies. The spotlight thus falls on standards and recommendations to regulate technical aspects and secure the interconnection and interoperability of networks, services and terminal equipment.

Moreover, telecoms (terminal) equipment and computers, on the one hand, and voice and data communication on the other, are becoming less and less distinct as entities. One thing that is certain is that information and communications technologies are bringing about an ever more dynamic structural change in business and society.

Work in national and international bodies
Representing Germany's interests in the telecoms standardisation bodies in respect of the development of new services and technologies is one of RegTP's responsibilities. Currently, its work in the national and international bodies is focused on implementation of the new TKG, radio compatibility, media convergence, market watch, use of coaxial cables for telephone and data transmission to interactive networks, the provision of access to emergency services, satellite communications, new wireless technologies, security issues and consumer protection.

With German regulatory requirements in mind, RegTP staff are involved at all stages of compiling standards and recommendations in working groups of, for instance, the European Commission, the ITU, CEPT, the European Telecommunications Standards Institute (ETSI), the International Organization for Standardization (ISO/IEC), the International Maritime Organisation (IMO) and the International Civil Aviation Organisation (ICAO), balancing the interests of the industry and users with regulatory requirements.

In the period under review RegTP was represented in 31 project teams or working groups of the CEPT Electronic Communications Committee (ECC), in 43 bodies of the ITU Radiocommunication Sector, in 14 bodies of the ITU Standardization Sector, in 7 other ITU bodies (eg TSAG), in 61 ETSI bodies including the Board and the 3rd Generation Partnership Project (3GPP), at 28 international meetings (eg TCAM, EU workshops) and at 115 national meetings (eg PLC, radio compatibility). RegTP hosted 37 international meetings, attended by participants from 35 different countries.

Market surveillance under the EMC Act and the RTTE Act
Some 65,000 new equipment types, or 250 million items of electrical and electronic equipment and components are placed on the German market every year. This represents around 30 percent of the entire market of the European Economic Area.

Verified were:
- compliance with the CE marking requirements
- the plausibility of the EC conformity declarations
- compliance with the EMC protection requirements
- conformity with the essential requirements of the RTTE Directive
- information on intended use and any operating restrictions applicable to radio and telecoms terminal equipment.

Under its mandate, RegTP carries out tests on electrical equipment in the market. This testing is based on the EMC Directive 89/336/EEC and the Radio Equipment and Telecommunications Terminal Equipment Directive 1999/5/EC and their transposition into national legislation by the German Electromagnetic Compatibility Act and the German Radio Equipment and Telecommunications Terminal Equipment Act respectively.

Market surveillance by RegTP under the EMC Act and the RTTE Act involved a total of 13,606 separate activities in 2004. Tested or inspected were 9,289 series and one-off products, 7,175 under the EMC Directive and 2,114 under the RTTE Directive.

Also, compliance with the essential requirements under section 3(1) of the RTTE Act (equipment and product safety aspects) was checked in 2004 for 106 products. Mainly checked were the essential requirements in relation to electrical functionality, temperature stability, correct and complete information on transformer information plates and their wipe resistance. Formal faults and exceeded limits were found in 32 cases. This translates into an irregularity rate of 30 percent. Serious faults were found in two of the types of rechargeable battery for mobile phones, which caught fire when their dielectric strength was tested. Customs officers had given these to RegTP for testing, and pronounced an import ban as a result.

Breakdown of activities by product group

EMC Directive (7,175 products)

Domestic appliances	23.18%	1,663 products
Power tools	16.86%	1,210 products
Lighting equipment	14.27%	1,024 products
IT/office equipment	16.46%	1,181 products
Consumer electronics	15.86%	1,138 products
Medical devices, scientific and industrial equipment	5.77%	414 products
Other	7.60%	545 products

RTTE Directive (2,114 products)

Telecoms terminal equipment	12.72%	269 products
Radio equipment	77.34%	1,635 products
RTTE Act combined devices	9.94%	210 products

With regard to the CE marking and conformity declarations 294 devices, ie 4.1 percent of the products tested, failed to meet the requirements of the EMC Directive and 952 devices, ie 45 percent of the products tested, failed to meet the requirements of the RTTE Directive. Overall, these tests showed irregularities in 13.41 percent of the equipment looked at.

Also, 1,306 series and 134 one-off products were tested. The results showed irregularities in 447 series and 23 one-off products, ie 34 percent of the series products and 17 percent of the one-off products tested failed to meet the EMC protection requirements or the RTTE essential requirements. The high percentage of non-compliant equipment stems from the fact that RegTP takes its samples specifically from equipment which it fears will not be up to scratch. The checks are made on representative samples of the different product groups in the German market and the products grouped in line with the relevant standards and national test specifications.

A scaled procedure was again used in 2004 to assess compliance with the protection requirements of section 3 of the EMC Act and the essential requirements of section 3(1) para 2 of the RTTE Act. Breaches of the Acts can thus be addressed in a more nuanced way. First, a hearing is conducted. Only after the hearing has taken place and the documentation has been scrutinised is a decision on further action taken. The EMC/RTTE Cost Ordinance also reflects this differentiation. Over the year, 442 sales bans were imposed under the EMC Act and 578 under the RTTE Act on grounds of non-compliance with the protection / essential requirements or on

grounds of faulty marking. To date, 12 sales bans under the EMC Act and 118 under the RTTE Act have led to invocation of the safeguard clause.

Results of tests on series of equipment

Breakdown by product group					
Product group	**No of series tested *)**	**No of products tested**	**No of non-conforming series**	**No of non-conforming products**	**Quota series**
1 Domestic appliances	**154**	**549**	**43**	**159**	**28%**
2 Power tools	**183**	**648**	**37**	**128**	**20%**
3 Lighting equipment	**222**	**848**	**110**	**424**	**50%**
4 IT/office equipment	**219**	**782**	**75**	**273**	**34%**
5 Consumer electronics	**188**	**703**	**76**	**297**	**40%**
6 Telecoms equipment	**63**	**250**	**21**	**82**	**33%**
7 Radio equipment	**157**	**603**	**51**	**194**	**32%**
8 Industrial equipment	**40**	**152**	**16**	**62**	**40%**
9 Medical devices	**1**	**3**	**0**	**0**	**0%**
10 Scientific equipment	**4**	**15**	**1**	**4**	**25%**
11 Installation materials	**38**	**139**	**12**	**45**	**32%**
12 Other	**0**	**0**	**0**	**0**	**0%**
13 RTTE combined devices	**37**	**134**	**5**	**21**	**14%**

*) As a rule, five pieces of equipment of a particular type (series) are tested.

Results of tests on one-off products

Breakdown by product group					
Product group	**No of cases**	**No of products tested**	**No of non-conforming cases**	**No of non-conforming products**	**Quota products**
1 Domestic appliances	**41**	**42**	**5**	**5**	**12%**
2 Power tools	**0**	**0**	**0**	**0**	**0%**
3 Lighting equipment.	**4**	**6**	**0**	**0**	**0%**
4 IT/office equipment	**61**	**62**	**14**	**14**	**23%**
5 Consumer electronics	**3**	**5**	**0**	**0**	**0%**
6 Telecoms equipment	**5**	**5**	**0**	**0**	**0%**
7 Radio equipment	**6**	**7**	**3**	**4**	**57%**
8 Industrial equipment	**6**	**6**	**1**	**1**	**17%**
9 Medical devices	**1**	**1**	**0**	**0**	**0%**
10 Scientific equipment	**2**	**2**	**0**	**0**	**0%**
11 Installation materials	**5**	**5**	**0**	**0**	**0%**
12 Other	**0**	**0**	**0**	**0**	**0%**
13 RTTE combined devices	**0**	**0**	**0**	**0**	**0%**

Protection of radio services
Activities to secure compatibility before new services are introduced were again undertaken in close cooperation with other international administrations and the developers and potential operators of the new technologies. Radio compatibility issues were addressed by RegTP in international CEPT and ITU bodies, for instance CEPT ECC SE (Spectrum Engineering), in which Reg TP recently took over the chair.

A phased plan was drawn up for the introduction of compatible UWB radar applications for collision avoidance systems in the automotive industry (short range radar, or SRR). The plan basically provides for SRR operation in the 24 GHz band temporarily and in the 79 GHz band after 1 July 2013. RegTP was able to provide constructive input for a comprehensive study on the protection of radio systems below 10.6 GHz susceptible to interference from various UWB systems (sensors, through-wall radar, for communications purposes, etc). In this, the findings of a study prepared by Karlsruhe University on the characteristics of the interfering signals provided valuable assistance. Thus the introduction of these new wireless technologies in Europe came a step closer.

Compatibility studies were also carried out in the mobile communications field. Most notably, the technical parameters for introducing wideband PAMR in the 451.00 – 455.74 MHz and 461.00 – 465.74 MHz bands were established, paving the way for deployment, for the first time, of wideband PAMR networks and services, mainly for corporate communications.

Further preliminary studies were carried out on the future use of broadband wireless systems in the 3.5 GHz band providing, for instance, high speed Internet access and transmission paths between WLAN nodes and the Internet.

With regard to digital television, the planning parameters and instruments were determined at RRC 2004 in preparation for the all-important regional planning conference two years later (RRC 2006).

Further activities were necessary for the introduction of NB 30 of the Frequency Band Allocation Ordinance, regulating free use in and along conductors. So as to assess the interference potential of local area networks (LANs) in relation to compliance with the limits set out in Table 1 of NB 30, RegTP commissioned Hanover University to prepare a study investigating and assessing the interference potential of LAN signals. The findings, which proved favourable for LAN use, also fed into CEPT ECC SE's work.

Electromagnetic compatibility standardisation
RegTP's commitment in the national and international standardisation bodies led in 2004 to the introduction of limits for permitted emissions in the 1 GHz to 18 GHz range in the recommended standard for ISM devices. Limits in the 1 GHz to 6 GHz range were also agreed for IT and telecoms terminal equipment. These will be included in a new edition of the standard, now set for adoption in 2005. It is planned that the agreed limits will then be used as generic limits in the EMC generic standards on unwanted emissions. Significant progress was also achieved in developing application-ready procedures for measuring unwanted emissions. Further alternative and independent test procedures and facilities for carrying out

EMC product conformity tests are therefore becoming available, enhancing procedures in the laboratories and shortening the time taken.

Enactment in October 2004 of the new Vehicles Directive 2004/104/EC marked substantial progress in respect of EMC and mobile radio equipment for use in motor vehicles by removing the overlap between the RTTE Directive and the old Vehicles Directive 95/54/EC. RegTP's input in the specialist mobile equipment groups helped to secure the outcome that, in future, most of the types of radio equipment for vehicle retrofit will need only the CE marking and that the additional type examination that used to be a requirement under the Vehicles Directive will cease to apply. For the mobile equipment manufacturers, a European arrangement has thus been reached for EMC conformity assessment, one that is stable and – most importantly – transparent. Duplicate EMC testing will thus be avoided in future. The focus of RegTP's activities on European harmonisation of the national NB 30 assessment criteria from the Frequency Band Allocation Ordinance has now shifted to the CEPT/ECC level where the European administrations are working on a joint recommendation to assess radio interference from telecoms networks. It is generally assumed that the new ECC Recommendation will enhance the transparency of European administrative action.

Advising on the application of EMC standards
Again in 2004, specialist advice was provided to internal and external customers on the application and interpretation of EMC standards, the EMC Act, the RTTE Act, the TKG and the relevant European Council Directives. It was possible to answer in full, to the customers' complete satisfaction, most of the queries received by phone, e-mail and in writing, too, within the space of a few days. More complex problems were discussed, where possible, with the experts from the *Deutsche Elektrotechnische Kommission* and solutions and interpretations agreed with industry representatives. For the assignment of frequencies for the operation of ISM RF applications as required under the TKG, proposals for the amendment of existing ordinances were drawn up, most of which have already been implemented. However, since the National Table of Frequency Allocations also needs a certain amendment, this work can only be completed following the revision.

EMC and the environment
Site certification
Aiming to protect persons exposed to electromagnetic fields from radio transmitters, RegTP assesses fixed radio transmitters with an equivalent isotropic radiated power (EIRP) equal to or more than 10 W. It does this on the basis of the Ordinance concerning the Controls for the Limitation of Electromagnetic Fields (BEMFV). Operators requiring a certificate of safety for their site must give RegTP details of all the necessary technical parameters. Taking account of all the relevant local field strengths, RegTP then determines the safety distance to be kept from the transmitter. Only when this safety distance can be observed on site can the transmitter be put into service. Between January and October 2004 a total of 17,382 certificates of safety were issued for existing – that is to say, where the existing configuration was modified – and new sites.

EMF measurements
RegTP carries out EMF measurement programmes under section 13 of the above Ordinance to document its site certification procedures. These audits were again

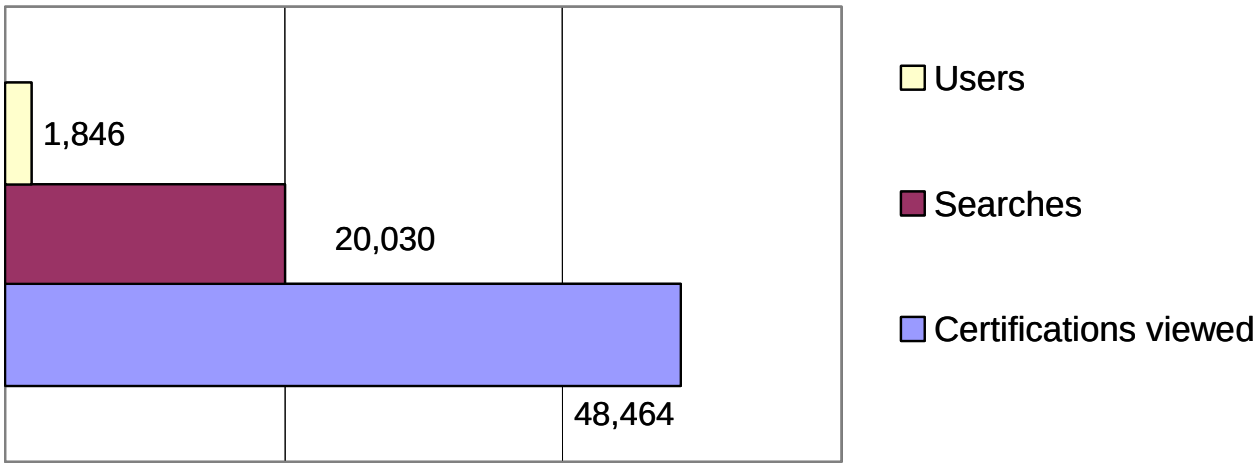
carried out in 2004 in close cooperation with the environment ministries of the federal states. Of the total of 2,000 measurement locations, 1,000 were chosen by the environment ministries. RegTP included these locations, unchanged, in the programme, evaluating the findings for entry in its EMF database: http://www.regtp.de.

EMF database
The EMF database is divided into two main data areas. One shows the sites of fixed radio transmitters that require operating clearance, the so-called certificate of safety, from RegTP. The other shows the locations of checks of compliance with public exposure levels. For every site and test location there is an information window giving details of the transmitters and of the measurements, respectively.

Since the database went live on 28 January 2004, **more than three million** searches have been made by visitors to the site. This heavy use indicates that the database has become an established source of information for the general public.

Local authority transmitter site database
Access to this database by the local and regional authorities needs a password, for data protection reasons. The database contains a listing of all the sites of operational radio transmitters for which RegTP has issued a certificate of safety. Meanwhile, the planned migration of the transmitter site database to the EMF database has been completed. All the functions of the transmitter site database are available to registered users in a password protected area of the EMF database. Savings in maintenance costs, in particular, are possible as a result.

Transmitter site database



As of December 2004

Recognition of conformity assessment bodies
Enactment of the Functions Assignment and Recognition Ordinance (BAnerkV) on 7 June 2002 tasked RegTP with recognising and assigning functions to conformity assessment bodies (CABs) in respect of radio equipment, telecoms terminal equipment and electromagnetic compatibility.

RTTE Act notified bodies
RegTP is responsible for the recognition of notified bodies under the RTTE Directive, transposed into national legislation by the RTTE Act in conjunction with the Functions Assignment and Recognition Ordinance. Currently, there are 6 notified bodies under the Act; these are continuously monitored.

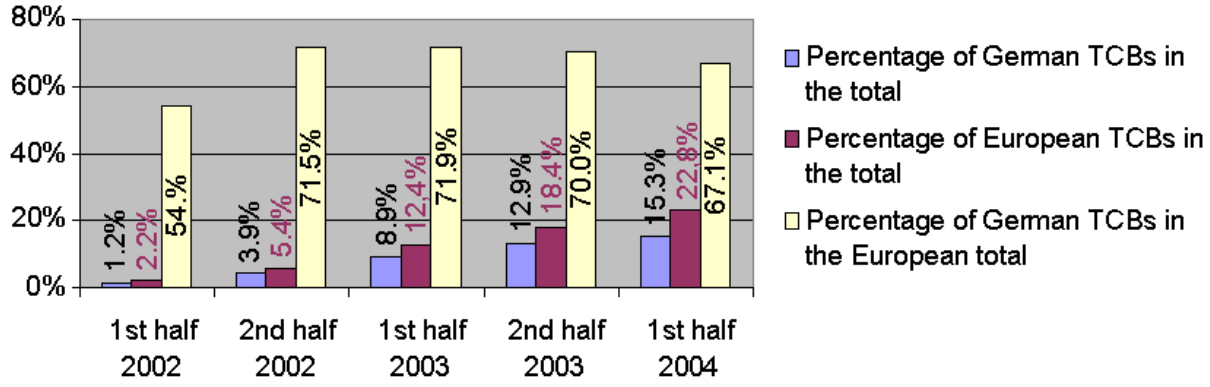
EMC Act notified bodies and competent bodies
RegTP is also responsible for functions assignment to notified bodies and the recognition of competent bodies under the EMC Directive, transposed into national legislation by the EMC Act in conjunction with the Functions Assignment and Recognition Ordinance. In 2004, functions were assigned to two notified bodies under the terms of the EMC Act. Also, 21 notified bodies were granted recognition under the Act; these are also continuously monitored. The work of these bodies is also performed by RegTP itself. In this role, RegTP was again the contact for the industry in 2004.

Looking to secure a wide-ranging exchange of experience, RegTP takes part in the work of the relevant national and international working groups. At national level, notified bodies and competent bodies are required to take part in the GNB (German Notified Bodies) and the GCB (German Competent Bodies) exchange of experience headed by Reg TP.

Mutual recognition agreements
Another task deriving from the Functions Assignment and Recognition Ordinance is the recognition of conformity assessment bodies (CABs) for third countries in the shape of mutual recognition agreements (MRAs). To promote international trade, the EU has signed agreements with the following non-EU countries: the US, Canada, Australia, New Zealand, Japan and Switzerland. MRAs allow the CABs of one country to assess particular products according to the rules of the other, as if they were resident there themselves. The agreements cover, in their sectoral annexes, a variety of products and areas on which the contracting parties reached agreement, eg pharmaceuticals, medical devices, telecoms equipment, electrical safety, electromagnetic compatibility, machines, printers, motor vehicles. Authorised in Germany to designate CABs for the sectoral annexes addressing radio and telecoms equipment and EMC is the Federal Ministry of Economics and Labour. Determining the competence of these bodies is RegTP's job. In all, 19 CABs have been recognised by RegTP under the MRAs so far.

For radio equipment, it is now possible for instance under the EU-US MRA for European / German CABs to carry out procedures according to the US framework and to enter the assessment results themselves in the database of the US regulator, the Federal Communications Commission, or FCC. The European / German CABs (US designation: Telecommunication Certification Body, or TCB) were able to consolidate their position in the first half of 2004, notching up 22.8 percent / 15.3 percent (2nd half of 2003: 18.4 percent / 12.9 percent) of the US market. Growth in these shares is shown in the table below.

Percentage of European TCBs in the US total



Quality system certification

Since 1996 RegTP has certified quality systems to the DIN EN ISO 9000ff series of standards in the regulated area of telecommunications. When the RTTE Act came into force on 6 April 2001, accreditation for the certification of quality systems in this regulated area ceased. Given the aim that the state should act solely in areas in which it was mandated to do so, RegTP decided to roll back its activities, as from that time, to its contracted business based on the DIN EN ISO 9000ff standards. The certification authority stopped work in April 2004 when the contracts expired.

Telecoms legislation and economic policy aspects

An interdisciplinary approach with input from technical, legal and economic experts is necessary if satisfactory solutions to technical regulatory issues are to be found. A policy section entitled Telecoms Legislation and Economic Policy Aspects of Technical Regulation has therefore been set up to provide this internal cooperation and to address the legal and economic aspects of technical regulation at a deeper level. This section is specifically concerned with future areas of regulation and assists the other specialist sections whenever regulatory issues with a strong legal and/or economic content arise. Its main activities for 2004 were as follows:

- Coordinating positions on technical regulation issues in the draft TKG ordinances, notably Customer Protection and Access to Emergency Services.
- Taking part at European level in the meetings of the Communications Broadcast Issues Subgroup and the MHP Implementation Group, set up by COCOM / the Commission, with a view to securing the regulatory aims in the new broadcasting part of the TKG. These Groups are to provision debate on the commercial introduction of MHP and address issues arising from the new regulatory framework for broadcasting.
- Helping to develop procedures for broadcasting, Part 4 (sections 48 to 51) of the TKG 2004 in conjunction with the regional media authorities' digital access office. The main issues had to do with the application programming interface (API) and conditional access services. Market players had the opportunity to state their views on the drafts.
- Identifying the issues of Next Generation Networks (NGNs) that will pose questions for the regulators in the next few years.

- Evaluating and coordinating the issues (provision of access to emergency services, in particular) raised by the VoIP consultation.
- Taking part in TCAM meetings, addressing the assessment of technical reports from the notified bodies on an inadequate technical basis.
- Assessing new approaches for electromagnetic compatibility in the debate in the EU on an amendment of the EMC Directive.
- Addressing legal questions of RegTP involvement in the German accreditation system, in particular taking part in the discussions about a fresh look for legislation to restructure the German system of recognition and accreditation.
- Taking part in discussions on further developing the RTTE Act.

Radio Equipment and Telecommunications Terminal Equipment Act
Enacted on 8 February 2001, the RTTE Act has regulated access to the European single market for radio equipment and telecoms terminal equipment since that time. Although the experience with its application has been largely positive so far, both EU and non-EU equipment manufacturers and those placing equipment on the market still, after almost four years, need clarification of the access procedures. Heavy use therefore continues to be made of the e-mail address FTEG@regtp.de set up to respond to questions specifically concerned with application of the RTTE Act. More than 220 queries from interested individuals as well as commercial market players from Germany and other countries were answered in 2004, mostly within a short space of time (cf 2002 – 100 queries, 2003 – around 200).

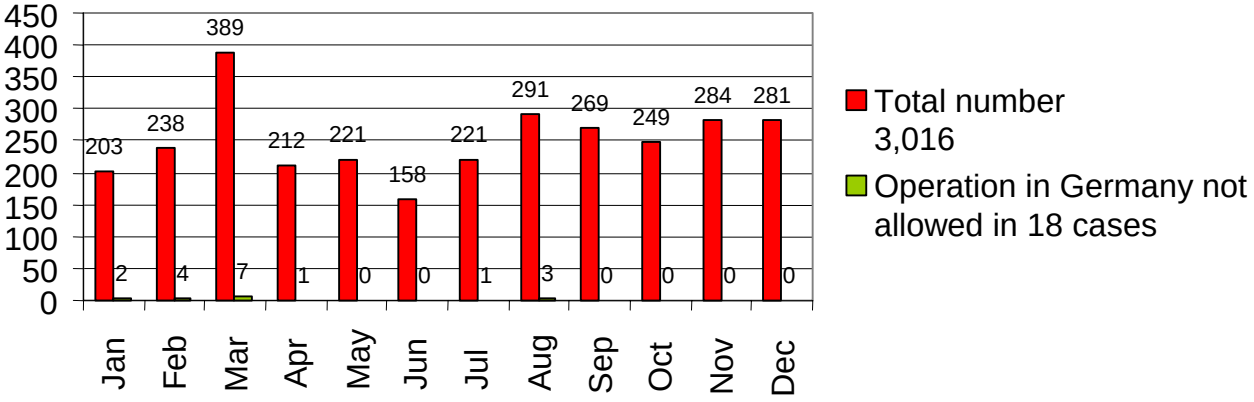
The German experience of application of the RTTE Act (and thus of the RTTE Directive) has been recorded and provided at European level to the Telecommunication Conformity Assessment and Market Surveillance Committee, or TCAM, set up by the Commission under the Directive. It has informed TCAM's decisions, made in conjunction with all the Member States. To secure a consistent interpretation of TCAM's decisions on application of the Directive within the Community, an Administrative Co-operation Group, TCAM ADCO, was set up with the Commission's support. As a result of EU enlargement in 2004, this Group has taken on a higher profile in providing support for the new Member States. RegTP is actively involved in ADCO, an involvement underlined by its having taken over the chair in 2004. ADCO was able to resolve most of the problems of interpretation for consistent application. Separately, preparatory work began on the organisation and coordination of another Community-wide market surveillance campaign in which technical conformity with the requirements of the Directive will also be checked.

Placing on the market notification for radio equipment operating on Community-wide non-harmonised frequencies
Radio equipment operated on frequencies whose use is not harmonised throughout the Community must, under section 10(4) of the RTTE Act (Article 6(4) of the RTTE Directive), be notified to the national spectrum management authority in the relevant Member State at least four weeks before being placed on the market. The aim is to secure efficient use of the radio spectrum. In Germany, RegTP is the authority to which notification of the intended placing on the German market should be sent. RegTP gives manufacturers and placers explanatory notes about the assignment needed (general or individual assignment) and information on any restrictions on using the frequencies in Germany. In some cases, placers must be advised that operation of the radio equipment they intend to place on the market is not possible in Germany.

Although much radio equipment for mass applications is operated on frequencies whose use is now harmonised throughout the Community and thus no longer needs to be notified before being placed on the market, the average number of notifications received by RegTP in 2004 was 250 a month. Compared to the previous years (in 2002 around 190 a month; in 2003 around 275 a month), this is a slight decline (10 percent) after the peak in 2003. This indicates the consistently strong potential of new radio applications and the importance of the German market.

A sample notification form, in German and English, can be downloaded from RegTP's website at http://www.regtp.de/tech_reg_tele/start/fs_06.html

Notifications received in 2004 under section 10(4) RTTE Act / Article 6(4) RTTE Directive



Public telecoms network interfaces

The provision of public telecoms network interface specifications is to enable equipment manufacturers to develop terminal equipment supporting use of all the services provided over the interface and to allow all the relevant tests of the interface-related essential requirements to be carried out.

Section 5 of the RTTE Act requires public telecoms network operators to disclose their network interfaces. This requirement is deemed met when RegTP is advised of the source for obtaining the specifications or of their reference, so that publication in the Official Gazette is possible. A listing of references published can be found at http://www.regtp.de/tech_reg_tele/start/fs_06.html. In all, RegTP has received around 1,000 interface specifications from public telecoms network operators. About 20 percent of the operators make their specifications available directly for download.

Interface specifications

Further progress was made in 2004 in drawing up and notifying air interface specifications. In all, 49 draft specifications were completed, 48 of which were notified by the EU, came into force by Official Journal order and were posted on the Internet. The process of further preparation, coordination, notification and publication is being continued and refined.

Development of DVB-T / DRM
Since the introduction of terrestrial digital video broadcasting (DVB-T) in November 2002 RegTP's regional offices in whose area DVB-T transmitter stations are operated have been keeping records of interference. So as to assess and eliminate interference, work has begun on drawing up measurement instructions based on the Chester 97 limits for the three possible kinds of reception

- fixed (outdoor, rooftop antenna)
- portable (outdoor), and
- portable (indoor)

using the corresponding procedures. The measurement specifications are expected to take effect in early 2005.

The broadcasters and regional media authorities are hoping for a similar success with Digital Radio Mondiale (DRM), a digital system in long wave, medium wave and short wave. DRM's benefits over traditional analogue service are as follows:

- reduced transmitter power as a result of improved modulation
- efficient frequency use as a result of single frequency networks, and
- near VHF quality sound.

RegTP in 2004 carried out two sets of tests at its Kolberg laboratory to test the robustness and susceptibility of the signals to interference. The outcome was remarkable: even with relatively low minimum wanted field strengths, broadcast reception quality was still acceptable.

Shared cable-radio use of frequencies
RegTP continued in 2004 to focus on securing electromagnetic compatibility for shared frequency use by cable TV networks and radio services and on anchoring rigorous limits in the European standards. It managed, for instance, after lengthy, intensive discussions in the standardisation bodies, to get the necessary limit for frequencies in the range from 5 MHz to 30 MHz (return channel operation for cable TV networks) included in the DIN EN 50117: "Coaxial cables" series of standards, ie transfer impedance of 5 mΩ/m for Class A cables. This means that only high quality Class A cable may be used for the return channel.

Cable TV network transition
The cable TV networks made progress in 2004 in transitioning to multimedia, interactive broadband networks. Regional operators began to offer Internet access with download speeds of up to 4 Mbit/s and cable telephony (VoIP) in addition to hundreds of analogue and digital radio and TV programmes. It is RegTP's duty, in line with the regulatory aims of the TKG, to shape and formulate the technical regulatory framework in the standardisation bodies; this includes, for instance, aspects of security, provision of access to emergency services, quality of service and interoperability.

First harmonised standards for broadcasting transmitters
RegTP was also actively involved in 2004 in creating harmonised standards for broadcasting transmitters. Draft standards for terrestrial analogue and digital sound and TV transmitters were drawn up in two ETSI working groups. In the working group

responsible for sound broadcasting transmitters RegTP has provided the Secretary since 2004.

The contents of the standards are, amongst other things, the essential requirements according to Article 3.2 of the RTTE Directive. Compliance with these is a must if radio equipment is to be properly placed on the market and operated. The Europe-wide public consultation has been successfully completed for the standards for the digital T-DAB, DRM and DVB-T stations, for instance, which are set for publication in early 2005.

Access to emergency services
Section 108 of the TKG 2004 and the current draft of the emergency services access ordinance (NotrufV) specify the provision of a technical directive, to be drawn up by RegTP with the participation of industry associations, the representatives of the emergency service centre operators nominated by the Federal Ministry of the Interior, network operators and equipment manufacturers. The directive is to give technical, operational and organisational details of the telecoms-specific part of the options for placing emergency calls. Preparatory work has included identifying the requirements of emergency service centre operators and holding talks for a better assessment of technical, operational and organisational readiness for providing access to emergency services.

Quality of service standardisation
Quality and price are key factors in a competitive market. To promote competition, Articles 11 and 22 of Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) require that adequate and up to date information on quality of service (QoS) be made publicly available. This is to enable both end users and providers to make more informed decisions and to influence competition accordingly. Standards are the basis for the provision of comparable and transparent QoS information; hence their availability is vital. RegTP believes this principle should be reflected in the national laws and regulations, seeing it as a way to promote QoS competition.

This is the background to RegTP's involvement in the meetings of ETSI/TC STQ (Technical Committee Speech processing Transmission and Quality of Service aspects) and ITU-T Study Groups 2 (Operational aspects of service provision, networks and performance) and 12 (End-to-end transmission performance of networks and terminals). These working groups draw up, amongst other things, standards on describing, recording and measuring quality of service. Most notably, they define, specify and standardise quality parameters describing and measuring telecoms service quality from the user's point of view. These parameters range from general ones such as service and billing, through parameters for the quality of voice, fax and data services, mobile services too, to parameters for Internet access services. RegTP also chairs individual subgroups, coordinates the preparation of some of the standards and hosts meetings at its Mainz office. Thus the preparation of many standards on the quality of telecoms networks and services has been initiated and followed through at ETSI and ITU-T. A public consultation on the provision of information on the quality of broadband Internet access was prepared for the national market. Also, the comments on QoS reporting by VoIP providers were evaluated in RegTP's VoIP consultation.

Metering and billing
Customers expect their bills to be accurate. This means to begin with that the data for the individual services must be recorded correctly and the prices properly applied. As the customer has no means of determining whether or not providers have established the charges in accordance with the contractual arrangements, provision has been made in section 5 of the Telecommunications Customer Protection Ordinance (TKV) to secure billing accuracy so that customers can be confident billing has taken place properly. All providers of publicly available telecoms services whose prices are time and/or distance based and who have a contract with the customer to bill for these services are required to demonstrate the required accuracy of their metering and billing systems, notwithstanding the service provided, the bandwidth and the switching and transmission technology used. In 2004 demonstration of compliance was given in 96 cases. Non-compliant providers were asked to take action to meet the section 5 requirements in full and to report to RegTP accordingly.

A number of providers had to be reminded that section 5 of the Ordinance requires annual demonstration of compliance. Some were asked for a demonstration of compliance as a result of new services offered. Administrative fines proceedings were initiated to enforce compliance in 14 cases.

Numerous enquiries from telecoms service providers and quality assurance bodies were answered. Explanatory comments were provided on how to proceed in the case of non-compliance with the requirements of the metering and billing systems. And clarification was also given with regard to the amended legal requirements in light of the experience gained with implementing section 5 of the 1997 Ordinance.

Ultra wideband applications
In the course of 2004 ETSI, actively supported by RegTP, completed further technical system descriptions for new, innovative ultra wideband (UWB) applications including new broadband applications for ground penetrating radar and wall imaging systems and storage tank measurement radar. This technology can be used for instance to detect cables and pipes, to examine ground water levels, to locate mines, to detect cavities, and to act as fluid level sensors in storage tanks. The industry has called for a standard to be introduced, as UWB is already being deployed. The European Commission has issued a special mandate for UWB standardisation activities. The standard for collision-avoidance radar systems in the automotive industry in the 24 GHz band was completed during the year and is now being agreed at national level.

Software defined radio
Development of tomorrow's radio systems is proceeding apace. No longer will they comprise a single system, but will support a plurality of systems and services through selection options. To shape developments, RegTP has launched a number of activities as described in the last Annual Report.

In the meantime, the TCAM Group on SDR has completed its work. A final report on the treatment of SDR devices was prepared for TCAM, based on the comments received in response to the surveys and contributions from Group members. This report was presented to the national administrations at the TCAM meeting in November 2004, not open to the public. Closing discussions are to be held and a

decision on the way forward is to be taken at the public TCAM meeting in March 2005.

In the field of research, four integrated SDR projects, each with a different focus, have been included in the Commission's 6th Research Programme at the suggestion of the European industry. One of these is E²R (End to End Reconfigurability). The project is scheduled to run for 6 years, ending in 2010. It began in January 2004. The first stage is set to run for two years. To continue among the SDR pioneers, RegTP is one of the 29 project partners from the European industry. In its part of the research project RegTP is examining, amongst other things, the feasibility of a concept for the chain of responsibility and liability in a highly flexible system.

Radio local area networks

In the 2nd quarter of 2004 the harmonised ETSI standard for radio local area networks (RLANs) in the bands 5150 – 5350 MHz and 5470 – 5725 MHz, along with an updated list of the titles and references of the harmonised standards for the purposes of the RTTE Directive 1999/5/EC, was published in the Official Journal of the European Communities (C104/22) and thus officially came into force within the EU as the harmonised standard for mobile equipment in the 5 GHz band. Spot checks by RegTP have shown widespread compliance with regard to implementing the necessary RTTE Directive requirements. The aim of these tests, namely to take equipment likely to cause interference to military radar systems out of circulation at an early stage, has been fully achieved so far. Revision of the harmonised ETSI standard, specifically in terms of the possible use of ad hoc networks as well as infrastructure networks, was set to reach a positive outcome at the end of the year under review.

Over the coming year, a modified general authorisation for wireless access systems/radio local area networks in the 5 GHz band is set for publication in RegTP's Official Gazette following the revision and adoption, in light of the WRC-03 results, of ECC Decision (ECC/DEC/(04)08) on the harmonised use of the 5 GHz frequency bands for the implementation of Wireless Access Systems including Radio Local Area Networks (WAS/RLANs). German interface specifications for broadband data transmission systems in RLANs in the bands 5150–5350 MHz and 5470–5725 MHz were notified by the European Commission in the course of the year.

Combating mobile phone theft

Not only the European Commission but also the mobile operator and equipment manufacturer associations are now discussing how to stem the flow of mobile phone theft in connection with Article 3.3(d) of the RTTE Directive. These associations are trying to minimise the need for regulatory action through self-imposed control mechanisms. RegTP took part in international activities aimed at combating mobile theft and held talks at national level with mobile operators and equipment manufacturers so that it could make a better assessment of the technical, operational and organisational requirements for implementing such mechanisms.

Road transport telematics

Much attention was given to road transport telematics in the year under review. The activities of both the industry and the standardisation bodies focused on applications of vehicle-to-vehicle and vehicle-to-road / road-to-vehicle communications, and communications between the vehicle and its environment (persons, satellite-

delivered services). Also included is technological implementation of the toll collect system, but not however non-communication SRR applications (24 / 79 GHz) or applications involving communications with and between other means of transport (ships, aeroplanes).

Standardisation at European level was the main focus of RegTP's work in this area. During the year, ETSI began preparing the system specifications for Intelligent Transportation Systems (ITSs). At the heart of the ITS activities, besides communications systems for the 63 – 64 GHz band, are systems in the 5 GHz band. For these 5 GHz systems extensive work by CEPT on issues of spectrum requirements and spectrum compatibility is needed in order to meet the special requirements of safety and availability of vehicle-to-vehicle and vehicle-to-road / road-to-vehicle data transfer in this band. One of the ITS applications, supported by major car manufacturers (Car2Car Communication Consortium), is multi-hop systems. Multi-hop systems will, it is hoped, enhance road safety, improve the flow of local traffic and deliver major infrastructure improvements, combined with a positive effect on the economy (eg by avoiding queuing traffic and enforced waiting).

Multi-hop systems transmit information between vehicles in front and behind, with the information between them being passed on. Thus ad hoc networks are created in which oncoming vehicles are also included. It should be noted in conclusion that infrared system trials have now been successfully completed for these applications.

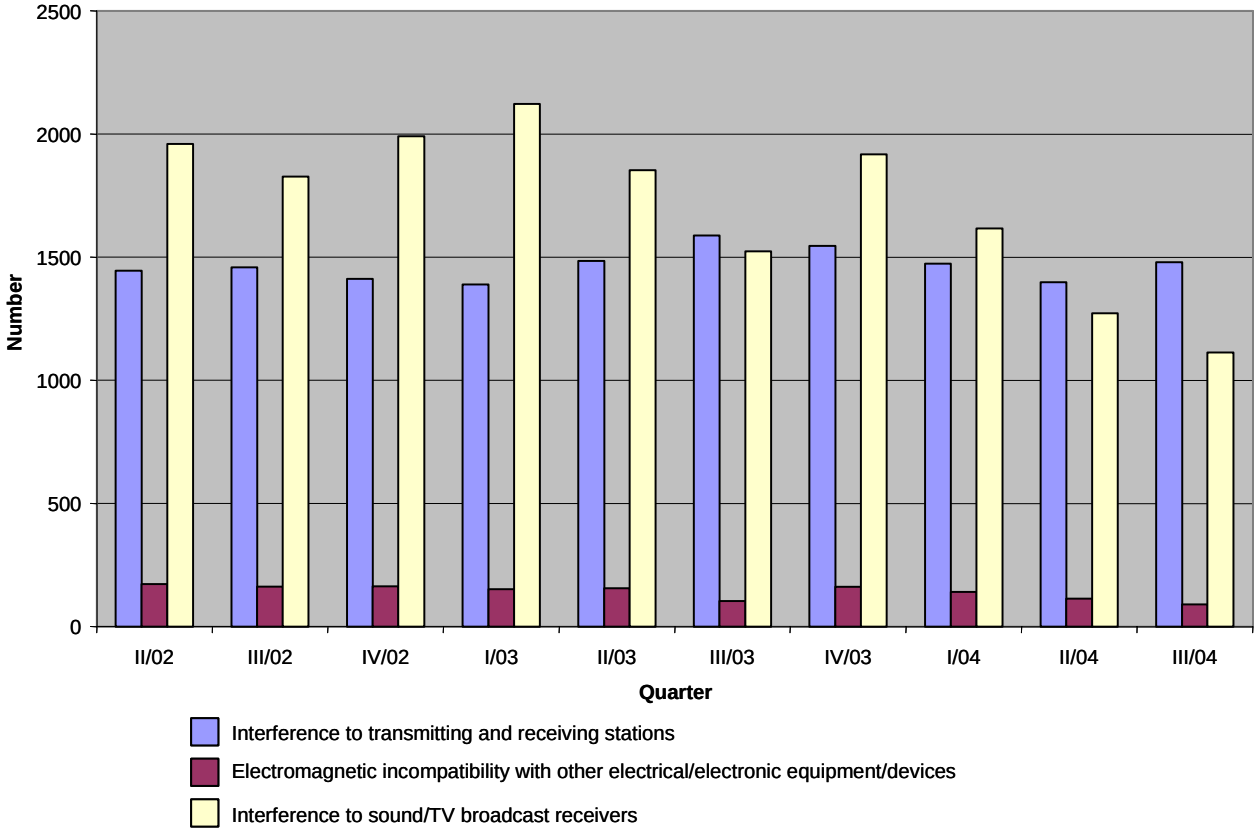
Digital mobile radio
After several unsuccessful attempts at ETSI to agree a new standard for digital mobile radio (DMR), the breakthrough – in which RegTP was instrumental – came in 2004 when all interested ETSI members reached agreement. DMR covers every segment of the market, from the digital PMR 446 consumer market right up to the market for highly professional systems. Thus increasing digitisation will be experienced here too, allowing market players to benefit from lower costs, better spectrum utilisation, less complexity, new services and enhanced quality.

Radio monitoring and inspection service
Present throughout the country and equipped with state of the art measuring facilities, RegTP's radio monitoring and inspection service (PMD) again made a vital contribution, in a variety of ways, to securing the efficient and interference-free use of frequencies and an environment of electromagnetic compatibility. The extensive monitoring and inspection activities again focused on eliminating interference, checking frequency uses, market surveillance, measuring electromagnetic fields (EMFs) and identifying unauthorised frequency usage.

Interference investigations
Clearing up cases of electromagnetic and radio interference is not just a top priority for the radio monitoring and inspection service, but is also one of the most frequent and most demanding tasks. This is particularly true where sensitive services and applications are concerned. Both all-purpose and specially equipped vehicles are used in addition to stationary measuring facilities and direction-finding systems to determine domestic and foreign sources of interference.

Most of the cases of interference addressed in 2004 concerned interference to transmitting and receiving stations and interference to sound and TV broadcast receivers. Only a small percentage of cases was concerned with electromagnetic incompatibility with other electrical or electronic equipment and devices. The introduction of digital television (DVB-T) was accompanied by a slight fall in the number of cases of interfence to sound and TV broadcasting, whereas the number of cases of interference to other radio services remained at more or less the same level (see chart).

Number of completed cases by category of interference



The radio monitoring and inspection service in 2004 dealt with, in all, 1,125 cases of interference to aeronautical radio. Of these, 775 concerned frequencies used by the *Bundeswehr*'s Search and Rescue (SAR) operations and 301 were reports from German air traffic control (DFS) and the airports. In 49 cases the radio monitoring and inspection service acted on its own initiative when limits were exceeded with regard to frequencies for the aeronautical service.

Particularly worth mentioning is the case of interference to a satellite. Radiodetermination investigations showed the area in which the source of interference was looked for to be moving with each set of measurements. Following further more detailed measurements and analyses the cause of interference was then eventually found to be a German broadcaster's defective satellite news gathering (SNG) facilities. Spurious emissions caused by the defective equipment had affected transmissions on the assigned frequency, causing interference to the satellite. Separately, a large number of public mobile radio interference cases were

brought to a successful conclusion. Heavy use continued to be made of the national number **0180 3 23 23 23** for reporting interference. Considerably more than 100,000 calls were registered.

Investigating frequency usage for WRC-07
RegTP in April and November 2004 coordinated measuring initiatives across Europe on frequency usage in the band <10 MHz. The findings from a total of 22 monitoring stations from 14 countries were compiled in a report on CD-ROM and sent to the Conference Preparatory Group. This was the first time it was possible to show automatic measurements from the European administrations in a single representation. Initial feedback from the Group confirmed that, thanks to the evaluation in chart form in particular, a better overview of frequency usage was now possible.

Market surveillance
Market surveillance, carried out by the radio monitoring and inspection service under the EMC Act and the RTTE Act on a coordinated European basis, makes a substantial contribution to securing the efficient and interference-free use of frequencies. Market surveillance tasks in 2004 were completed in specially equipped regional offices and a test laboratory. RegTP's accredited laboratory in Kolberg carried out EMC tests on products directly or indirectly covered by the EMC Directive 89/336/EEC and the EMC Act. Additionally, tests of the functional parameters of equipment covered by the RTTE Directive 1999/5/EC and the RTTE Act were made. The test laboratory also took measurements to check the specific absorption rate (SAR) of mobile phones. These measurements are the basis on which compliance with the essential requirements of the RTTE Act is checked to protect users' health.

EMF measurements
The radio monitoring and inspection service in 2004 continued its programme of national EMF measurements based on the procedures agreed with the federal states. The focus was the radio frequency spectrum with 1,939 measuring points. At none of these points were the limits exceeded. All the results are available online in RegTP's EMF database.

Frequency usage checks
Under its programme of frequency usage checks the radio monitoring and inspection service in 2004 examined more than 10,000 frequency assignments in various applications for compliance with the conditions of assignment. This action is based on section 64 of the TKG, and is designed to secure the aims of frequency regulation through measures such as examining radio stations for compliance with the technical and operating provisions specified in the assignment at the air interface or failing that, at the transmitter. Negative effects on frequency usage are thus to be identified at an early stage and the volume of interference minimised. Non-compliance was established in 27 percent of PMR cases. In all, around 8,500 frequency assignments for PMR applications were checked. Non-compliance was established in 35.5 percent of inland waterway service cases. And in satellite communications, some 100 earth stations across the country were looked at.

Point to point links have taken on added importance in connection with UMTS service rollout. UMTS locations are often connected using point to point links. Non-compliance with the provisions of the TKG was established in 24 percent of cases

using this application. Often, divergent site coordinates were found. The site coordinates are of great importance in terms of reliable assignment for point to point operation. The increased use of assignments for WLAN applications continued in 2004. The check of compliance with the conditions of assignment showed deviations in radiated power in over 50 percent of cases. The figures show clearly that the radio monitoring and inspection service, active in every part of the country, makes a significant contribution to securing efficient and interference-free use of frequencies and successful frequency assignment planning.

Space radio services
The radio monitoring and inspection service at Leeheim station contributed in 2004 to satellite monitoring in Europe by carrying out some 25 requests for measuring efficient use of the spectrum by satellite downlinks. Two extensive tasks were carried out for international working groups under a CEPT agreement. Thus it was established for instance that the Iridium satellite system for mobile satellite communications was scattering about 500 times its power as spurious emissions in the radio astronomy band and that it had extended the band in which it operated in breach of the agreements. The operator is now called upon to remedy the situation.

Other measurements
To enhance the quality of EMF measurements a volume containing material on the EMF round robin test was drawn up in collaboration with Kaiserslautern and Koblenz universities. All those taking part took the same measurements, which were then evaluated and compared. While all the teams were able to make reliable statements about the limits, there were some clear differences in the details. Significant here was how the teams assessed their own measurement uncertainty. The findings were presented to the public in early March 2004. One working group addressed the TCF, the technical report under which homeplug PLC modems were CE marked. Practical tests and laboratory measurements were used to determine the extent to which properly marked PLC modems could still cause interference to broadcasting receivers.

Finding pirate broadcasters
A new phenomenon is Dutch pirate broadcasters transmitting in Germany so as to avoid the considerably higher financial penalties in the Netherlands. The traditionally good cooperation with the Dutch counterparts bore fruit, delivering a positive outcome to the investigations. At the end of 2004 the radio monitoring and inspection service in conjunction with the police and the Dutch authorities took a 10 kW VHF transmitter out of service in the Bad Bentheim area. The pirate broadcaster was being operated on a 100m mast.

Electronic signature

RegTP is the competent authority under the Electronic Signatures Act (SigG). As such, its main tasks are accrediting and supervising (private) certification service providers, operating the state Trust Centre and providing a directory service as the root certification authority, recognising evaluation and certification bodies, determining suitable algorithms for qualified electronic signatures and providing advice at all stages of the legislative process.

Legislative process
The Electronic Signatures Act and associated Ordinance (SigV) were amended in 2001 and thus aligned with the European Electronic Signatures Directive. Yet some provisions of the law still needed clarification and tightening up. This led to the First Amending Act in 2004, driven chiefly by the banks' desire for the issue of banking cards with electronic signature functions to be simplified. RegTP provided valuable input at the negotiations, based on its experience of putting the legislation into practice.

Certification service providers
The number of certification service providers, whose activities RegTP has to supervise, has grown steadily since the Electronic Signatures Act came into effect. By the end of 2004 a total of 28 certification service providers were offering the products and services required to create and verify qualified electronic signatures. A precondition for this is notification to RegTP. Providers must demonstrate that they have the necessary reliability and specialist knowledge, and suitable personal liability insurance. They must also submit a detailed security concept showing their implementation of the measures for meeting the statutory security requirements.

All 28 certification service providers opted for the voluntary accreditation route. Here, trust centre security is tested in advance of beginning service. Only when operators' reliability and the proper implementation of their security concept have been attested by a recognised evaluation and certification body and their specialist knowledge determined can accreditiation be pronounced by RegTP and the trust centre's high security level be "state approved", as it were. Accredited certification service providers receive a quality mark from RegTP and may cite their proven security levels in their legal and business transactions.

Since 2003 RegTP has continued the directory service of a certification service provider whose accreditation it revoked that same year. In 2004 this activity was transferred by RegTP, as an interim solution, to another accredited certification service provider. It will again be performed by RegTP in 2005. Checks were made on particular grounds in two cases and administrative fines proceedings initiated as a result of non-compliance with the statutory requirements; neither case was closed at the end of 2004.

Root authority's technical operations
The tasks of the Trust Centre as the root authority include the generation of signature keys for accredited certification service providers, the issue of certificates uniquely linking public key and public key holder, and the provision of a directory of certificates issued and barred by RegTP, accessible 24 hours a day. Qualified certificates can therefore be checked at any time, by anybody.

A comprehensive upgrading of the root authority, which went live at the beginning of 1999, began in mid-2003. Work was completed in December 2004 when the new Trust Centre was taken into service. Most importantly, the LDAP and OCSP protocols are now available, and certificates are now issued in the X.509 v3 format and the revocation lists in the X.509 v2 format.

Consulting and work in committees

The qualified electronic signatures market is developing slowly, but the trend is clearly positive. Now that the Civil Code, the Code of Civil Procedure, the Administrative Procedures Act and other statutes have been amended, the legal framework stands and public interest is growing. Consequently, the demand of the business community, public authorities and potential users for information and advice is also growing.

As Germany has pioneered the framework for electronic signatures, international interest in its legal, technical and administrative solutions is considerable. 2004 saw visits to RegTP from members of the competent authorities in the Czech Republic, Slovakia, Turkey and Japan, for instance. There are also contacts with counterparts in a number of other countries.

The importance of qualified electronic signatures and the associated infrastructure is also growing as a result of the *Bund Online* project and current government projects. These required input from RegTP in 2004 in, for instance, the Electronic Signatures Alliance, for health cards, JobCard procedures, electronic ID cards, at the Federal Employment Agency and the Federal Labour Office and for the federal virtual postal agency (VPS). Continuing a successful tradition with CAST e.V., a competence centre for applied security technology in Darmstadt, RegTP in 2004 again co-hosted and co-presented a public key infrastructures workshop. Further activities took place in the Association of Recognised Certification Bodies and in the Forum of European Supervisory Authorities for Electronic Signatures.

Publications

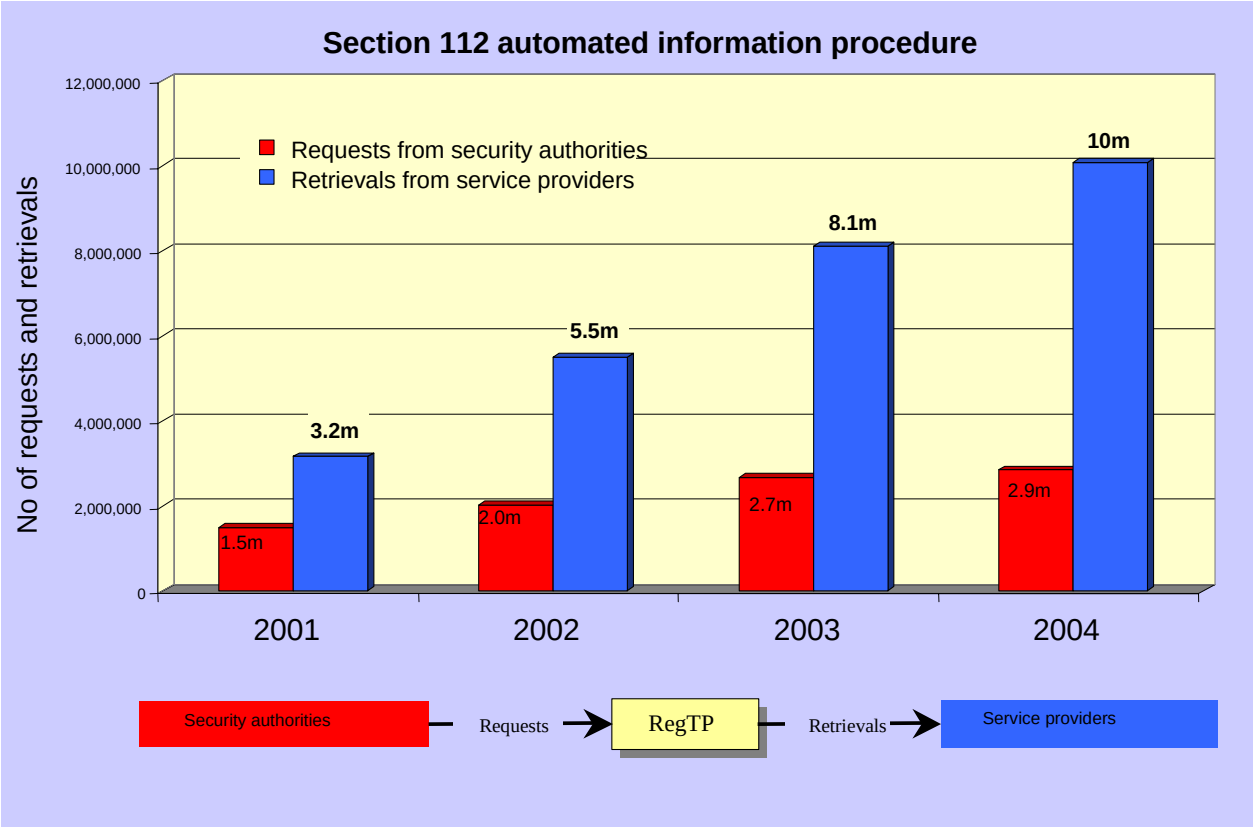
Under its mandate, RegTP in 2004 published the following information: lists of certification service providers accredited in 2004, certified qualified electronic signature products, suitable algorithms and associated parameters. Further FAQs were added to RegTP's "Electronic Signature" pages.

Section 112 TKG 2004 information requests

Requests from authorised bodies

For the performance of their duties, security authorities receive information (via RegTP) from the customer data files (name and address of telephone subscribers) kept by telecoms service providers. The group of public authorities and undertakings using the automated procedures grew steadily over the year. Currently, around 1,000 security authorities have registered with RegTP to retrieve customer data from a total of 71 telecoms service providers.

The diagram below shows the growth in section 112 automated information procedures over the period 2001 to 2004.



Postal market

Licences for postal services

The legislator has granted DPAG a statutory exclusive licence that runs until 31 December 2007 (section 51(1) sentence 1 of the Postal Act). Until the end of 2007, however, providers other than DPAG may perform services that by law do not come under DPAG's exclusive licence (section 51(1) sentence 2 of the Postal Act). These are:

A Conveyance on a profit-oriented basis of letter post items in accordance with the following table:

Period of time	Weight per item	Price per item	Source
01.01.03 – 31.12.05	over 100g	at least three times the applicable price for corresponding mail items in the lowest weight category	Third Act amending the Postal Act of 16.08.2002
01.01.06 – 31.12.07	over 50g	at least 2.5 times the applicable price for corresponding mail items in the lowest weight category	

B Conveyance on a profit-oriented basis of letter post items of identical content weighing more than 50 grams, the sender mailing a minimum of 50 items.

C Conveyance on a profit-oriented basis of letter post items delivered by the sender to a document exchange and collected by the addressee from the same or another document exchange operated by the same service provider, where sender and addressee use this service under a permanent contract (document exchange service).

D Services distinct from universal services, with special features and of a higher quality.

E Conveyance on a profit-oriented basis of letter post items that are collected from the sender and posted at the nearest DPAG acceptance office or at another DPAG acceptance office within the same community on the sender's behalf.

F Conveyance on a profit-oriented basis of letter post items collected from DPAG PO box facilities and delivered to the addressee on his behalf.

G Conveyance on a profit-oriented basis of letter post items with an international destination.

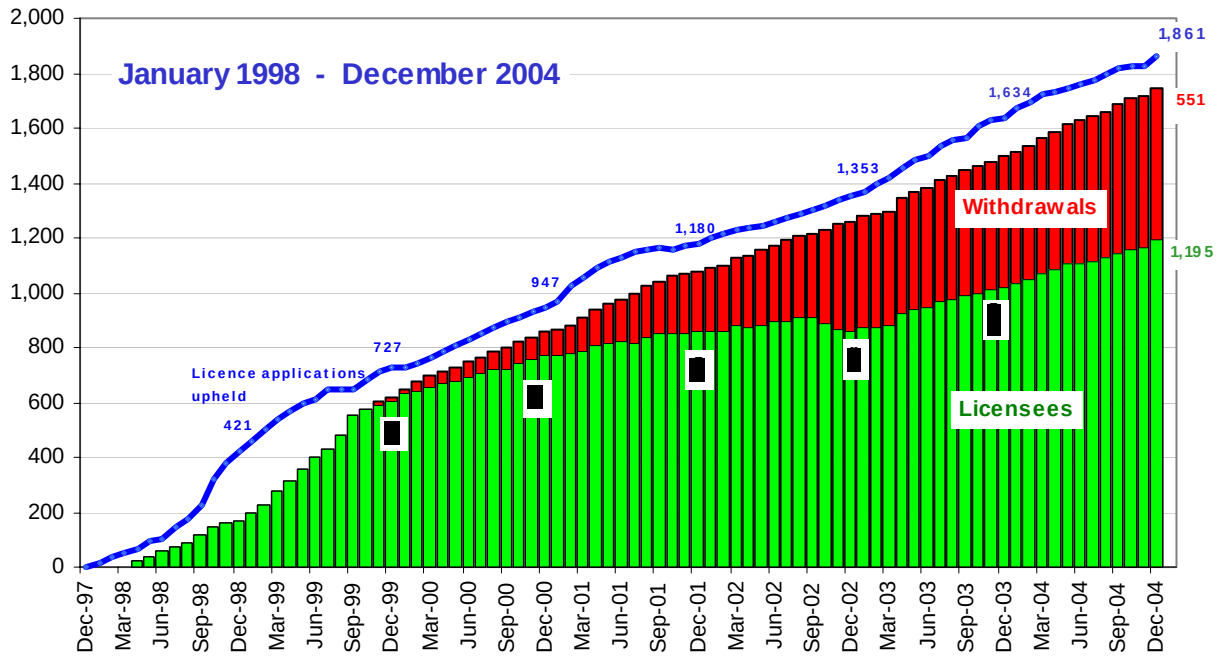
H Conveyance on a profit-oriented basis of letter post items from other countries to DPAG international mail acceptance points.

Licence applications, licences and market withdrawals

	1998	1999	2000	2001	2002	2003	2004	Total
Licence applications upheld	383	291	210	237	186	242	312	1,861
Licences granted	164	455	241	220	179	238	249	1,746
Licences denied	3	1	0	0	0	3	3	10
Market withdrawals	0	17	70	134	181	68	81	551

The relatively large number of market withdrawals did not cause the number of licensees to drop, as had been feared at the end of 2002. After experiencing a blip in the 2nd half of 2002, the number of licensees has since been on the rise again.

Trends in licence applications / licensees / market withdrawals



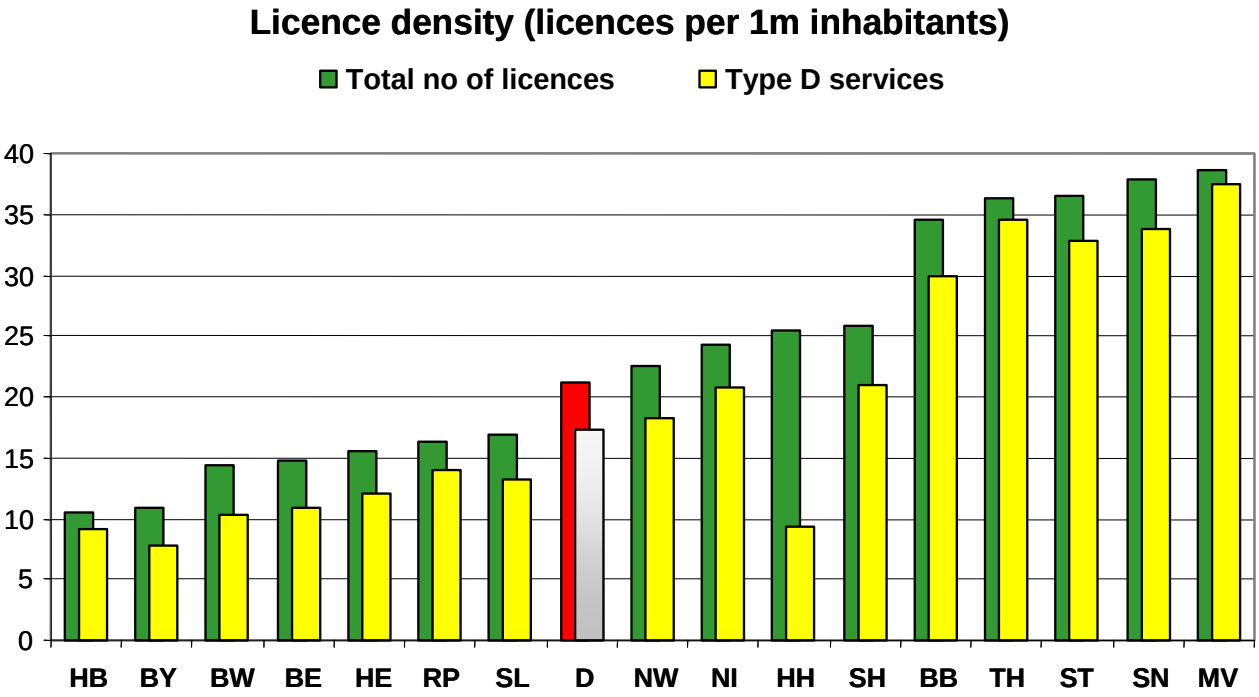
Breakdown of licensees by federal state

As of 31 Dec 04				Services subject to licence [1]							
Federal state		**Licences**	**Licence density [2]**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
BW	Baden-Württemberg	154	14.4	114	108	69	110	136	125	16	17
BY	Bavaria	135	10.9	93	89	61	96	122	119	19	15
BE	Berlin	50	14.8	33	32	23	37	45	40	5	3
BB	Brandenburg	89	34.6	52	65	39	77	77	71	5	5
HB	Bremen	7	10.6	7	7	5	6	5	5	1	1
HH	Hamburg	44	25.4	27	24	10	16	38	38	6	5
HE	Hesse	95	15.6	68	64	43	73	80	75	16	15
MV	Mecklenburg-Western Pomerania	67	38.7	44	41	25	65	53	50	6	6
NI	Lower Saxony	194	24.3	131	131	82	166	168	158	20	20
NW	North-Rhine Westphalia	408	22.6	288	285	210	330	359	351	83	80
RP	Rhineland-Palatinate	66	16.3	51	51	40	57	62	61	9	9
SL	Saarland	18	17.0	15	16	13	14	16	16	2	2
SN	Saxony	164	38.0	107	107	77	146	132	123	32	32
ST	Saxony-Anhalt	92	36.5	65	59	42	83	80	79	5	5
SH	Schleswig-Holstein	73	25.9	59	56	39	59	63	62	8	8
TH	Thuringia	86	36.2	55	60	34	82	72	69	5	5
	EU	4	---	4	4	4	2	4	4	2	2
Total:		**1,746**	**21.2**	**1,213**	**1,199**	**816**	**1,419**	**1,512**	**1,446**	**240**	**230**

1) See above for a description of service types A – H
2) Licence density = licences granted per 1 million inhabitants

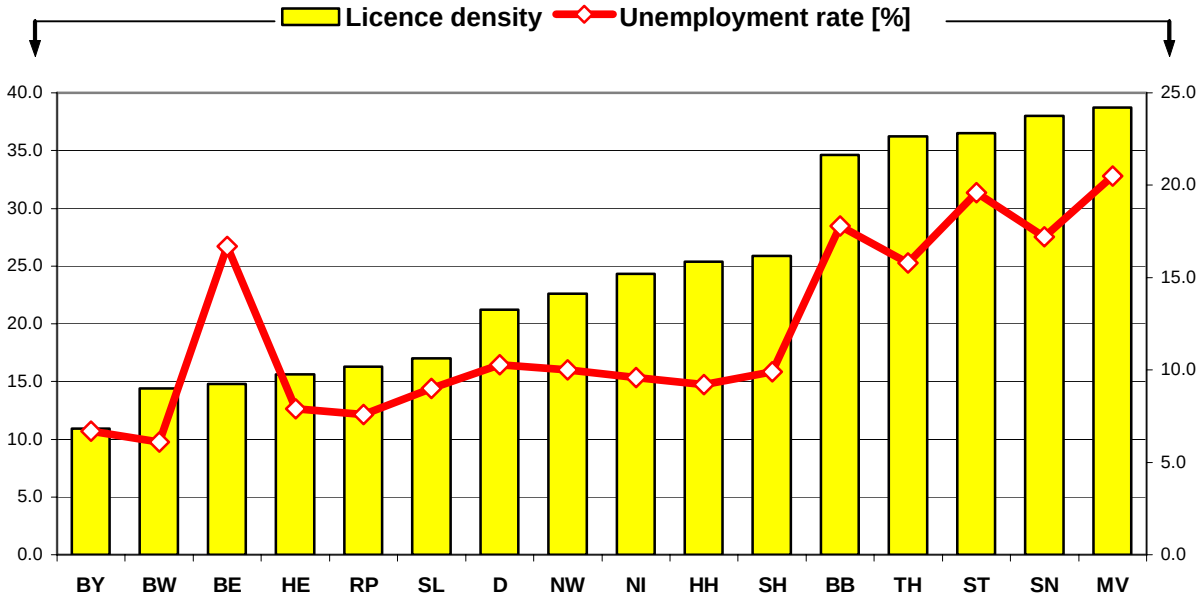
Licence density

The new opportunities afforded by the Postal Act are taken up to varying degrees in the federal states. One measure of the take-up rate is licence density (the number of licences granted per 1 million inhabitants).



Licence density in the new federal states is consistently at the upper end of the scale, suggesting that licensees there are making better use of new business opportunities than those in the old states.

In addition, in the new federal states there is a close correlation between unemployment rate and licence density (see illustration below).



Use of licence rights
Once they are granted a licence, licensees are entitled to perform certain activities in accordance with the Postal Act and associated ordinances. However, the fact that a licence is granted does not oblige a licensee to actually take up the licensed activity. The decision to do so, and the chosen point in time, are entirely up to the licensee.

Market situation at year-end 2004

Licences granted	Market withdrawals	Licensees not (yet) active	**Providers in the market**
1,746	551	107	1,088

⇩

Licences returned	Enterprises deregistered	Insolvencies	Firm ceased to exist	**Licence withdrawals**
389*)	63	49	45	**5****)

*) Of these, 107 due to a subsequent increase in fees according to the Postal Licence Fees Ordinance

**) These were withdrawn as facts that became known at a later date justified the assumption that licensees did not display the efficiency and reliability required to exercise their licence rights.

Licence checks
Licences are issued upon application provided the prerequisites are met, ie if there is no reason to deny the licence at the time. Having taken up the licensed activity licensees must ensure that the conditions continue to be met. This is regularly verified by RegTP. RegTP also makes checks in special cases, in particular if complaints are received. If faults are found, the licensee in question is given an opportunity to eliminate these within a set period of time. Should the licensee fail to do so within the set time, proceedings may be initiated against them. These proceedings may ultimately cause the partial or complete withdrawal of the licence.

Generally speaking, checks are made by RegTP offices *in situ*. Cases where a cause for investigation has been established take priority. The interval between routine investigations (previously one year) has recently been extended (aim: no additional investigators despite a rising number of licensees). The process is augmented by a new database system specifically for the postal market that is expected to go live in the first quarter of 2005. This will enhance the efficiency of the checks.

Results of checks
In 2004 RegTP conducted routine checks on the premises of 481 licensees. The investigators also took on an advisory role. In 62 cases RegTP made checks where a special cause had been established. Routine checks focus on the day-to-day business, compliance with the statutory provisions, collateral clauses and obligations imposed when the licence was issued, and the collection of market data. On balance, the results were positive. No severe breaches were established. The most frequent faults concerned the practical implementation of the higher quality requirement with regard to speed of delivery. However, these could generally be eliminated *in situ*. Some of the investigations where a special cause had been established were triggered by complaints from other licensees or recipients of postal items. It became evident that in most cases, unreliable delivery staff and subcontractors were the cause. The investigators frequently contributed towards settling the matter.

This type of investigation was also triggered by cooperations between various licensees. It has become evident that the cooperation partners' interpretation of the

'higher quality' requirement tends to vary, with the provision of 'higher quality' services becoming inconsistent as a result. The partners were requested to observe the terms and conditions of their licences. Investigations on providers' premises again brought to light a number of cases where licensed postal services were being offered without providers being in possession of the required licence. In most cases this was due to their lack of knowledge of the legal framework. In the meantime the enterprises in question have applied for and received the required licences. In one case administrative violation proceedings were filed.

Market data

Summary

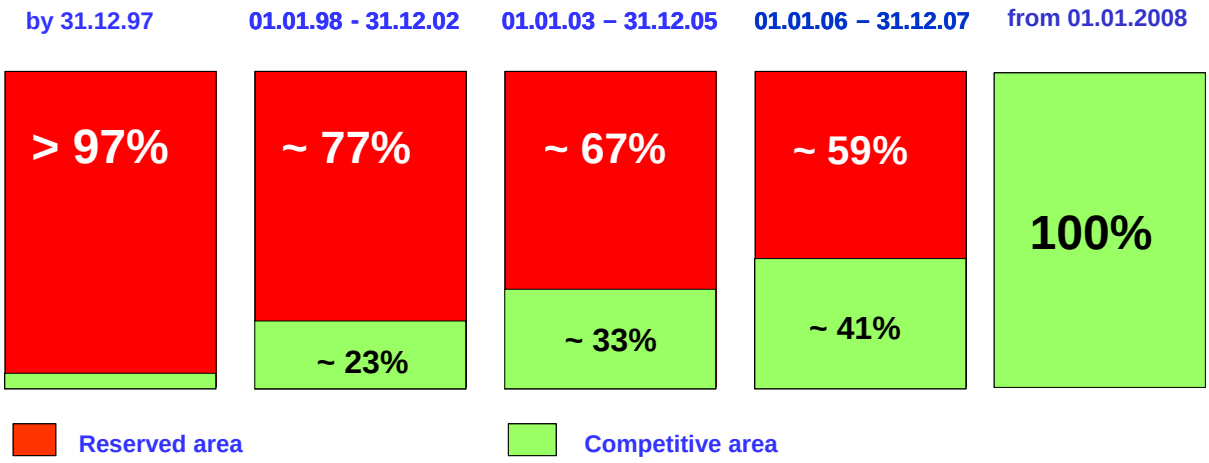
In 2004 revenues in the German postal market totalled approximately €23 billion. Some two thirds of the market – mainly courier, express and parcel services, but also parts of the letter post market – are already open to competition. Just under two thirds of revenues were accounted for by DPAG. The remaining third was generated by a large number of providers, the majority working in the courier, express and parcel segment.

Revenues in the licensed area (conveyance of letter post items up to 1,000g) in 2004 amounted to approx €10.1 billion. Despite certain areas of the market opening up to competition seven years ago, DPAG still maintains a market share of around 95 percent.

Development of the monopoly and competitive area under the Postal Act

According to RegTP calculations, the change in monopoly weight and price limits that was implemented through the Third Act amending the Postal Act of 16 August 2002 has had the following impact on the size of the monopoly and competitive area:

Gradual opening of the letter post market



Basis of the market analysis in the licensed area
As every year, in 2004 RegTP again carried out a market analysis among licensees and DPAG. Information was requested on various issues, including revenues and sales volume for 2003 (actual) and 2004 (expected) and staff.

Results of the market analysis
Revenues and sales volume in licensed area (including DPAG)

	2000	2001	2002	2003	2004*)
Revenues [€bn]	10.3	10.2	10.2	9.9	10.1
Sales volume [billions of items]	16.6	16.5	16.6	16.6	17.3
Revenue per item [€]	0.62	0.62	0.61	0.60	0.58

*) Expected figures

Licensees' revenues (excluding DPAG) in licensed area [€m]

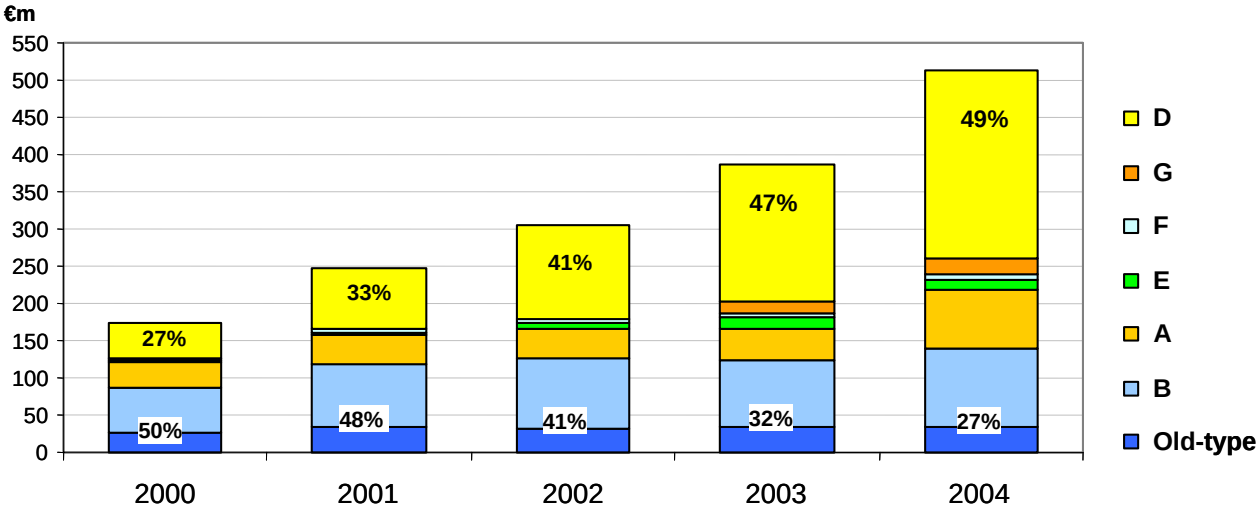
Licensed service		2000	2001	2002	2003	2004*)
A1	Letter post items > 200g or > €2.55	32.9	37.3	40.6	-	
A2	Letter post items > 100g or > €1.65 / €1.35	-	-	-	44.6	78.8
B	Letter post items of identical content > 50g	60.2	86.4	92.5	88	103.3
C	Document exchange service	0.5	0.5	1.2	1.0	1.1
D	Higher-quality services	46.5	82.9	125.8	183.5	253.1
E	Posting to DPAG posting offices	4.0	4.8	9.2	13.5	14.4
F	Collection from DPAG PO Box facilities	2.9	3.7	3.6	6.4	6.9
G	Letter post items with an international destination	-	-	-	16.2	21.4
H	Letter post items from other countries	-	-	-	< 0.1	< 0.1
Alt	Old-type licences (bulk items)	26.7	33.0	32.6	34.4	35.2
	Total	**173.7**	**248.6**	**305.5**	**387.7**	**514.2**

*) Expected figures

Service types A2, G and H have only been offered on the open market since 1 January 2003, when the Third Act amending the Postal Act of 16 August 2003 lowered the weight and price limits of the exclusive licence, thus opening up service types G and H to competition.

Breakdown of licensees' revenues by licence type
While new licensees' revenues in the licensed area are continuously increasing (+ 195 percent since 2000), they remain on a fairly low level. Revenues in excess of €1 million are achieved only with service types A2, B, D, E, F and G.

Breakdown of licensees' revenues by service



The range of services offered by licensees continues to shift towards the value-added segment (higher-quality or 'D' services). In 2000 these services accounted for a mere 27 percent share of revenues; in 2004, that share had grown to 49 percent. The proportion of standard conveyance services (above all 'B' services and old-type licences) continues to decline, from 50 percent in 2000 to just 27 percent in 2004.

Enterprise size (excluding DPAG)

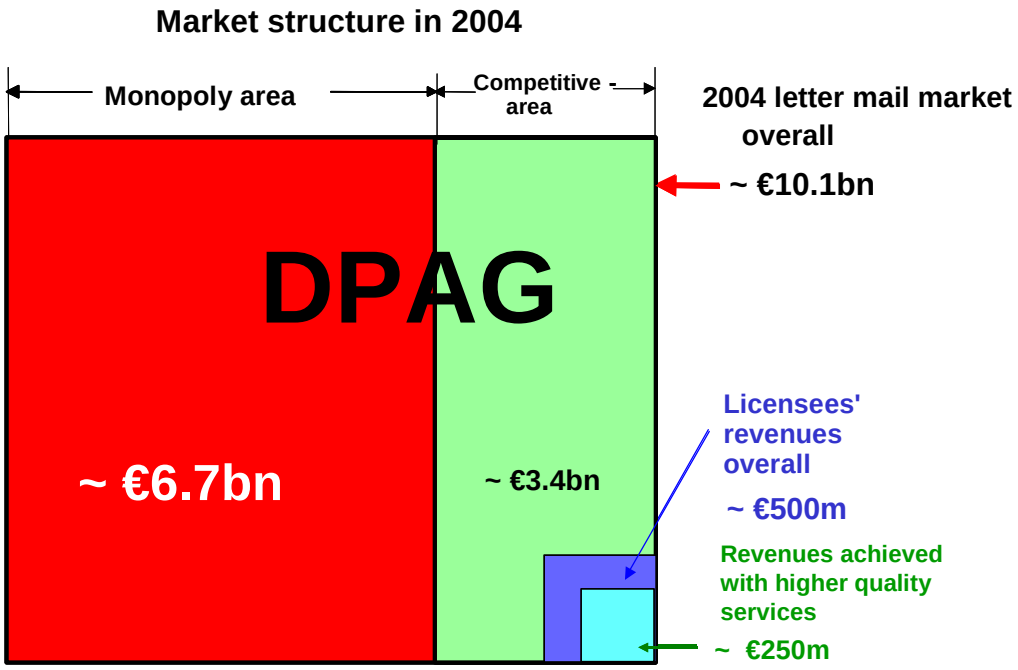
Revenues	up to €10,000	€10,001 to €100,000	€100,001 to €500,000	€500,001 to €1,000,000	> €1m to €10m	> €10m
1998	30	51	26	3	7	3
1999	108	167	62	11	15	4
2000	91	178	129	23	15	4
2001	77	192	143	21	30	5
2002	96	186	149	32	41	7
2003	138	225	162	50	54	8
2004[22]	119	236	166	63	69	10

Enterprises with annual revenues of less than €50 million and fewer than 500 employees are counted as small or medium-sized enterprises (SMEs). Of these, enterprises with annual revenues of up to €500,000 are considered small, while those with revenues of above €500,000 are considered medium-sized.

Accordingly, the licensees in the postal market are largely small enterprises (annual revenues ≤ €500,000), with only a small number of medium-sized enterprises (annual revenues < €50 million). However, as in 2003 the number of medium-sized enterprises again increased sharply (from 112 in 2003 to 142 in 2004).

[22] Expected figures

Market structure and shares in the licensed area



Market shares in the licensed area overall

Revenue figures	2000	2001	2002	2003	2004[23]
Market overall [€bn]	10.3	10.2	10.2	9.9	10.1
Licensees' revenues [€m]	174	249	305	388	514
Licensees' market share [%]	1.7	2.4	3.0	3.9	5.1
DPAG's market share [%]	98.3	97.6	97.0	96.1	94.9
Revenue achieved with higher-quality services [€m]	46.5	83	126	183	253
Share of higher quality services in the market overall [%]	0.45	0.80	1.25	1.85	2.50

After seven years in a (partially) open market DPAG's competitors have achieved a market share of around five percent only. DPAG continues to hold some 95 percent of the market (with market size increasing by just under three percent since 1998).

Market shares in the competitive area

(revenue figures are rounded)	2000	2001	2002	2003	2004[24]
Competitive area overall [~ €m]	2,400	2,400	2,400	3,300	3,400
Licensees' revenues [€m]	174	249	305	388	514
Licensees' market share [%]	7.25	10.4	12.7	11.8	15.1

[23] Expected figures
[24] Expected figures

Seven years after the market was opened, DPAG's competitors have achieved a 15.1 percent share of the market open to competition (services that by law are not covered by DPAG's exclusive licence).

Letter delivery times

The PUDLV specifies a national quality standard that requires, on an annual average, that 80 percent of domestic letter post items posted on a working day must be delivered on the following working day (J+1) and 95 percent on the second working day after posting (J+2). This does not apply to product types that require at least 50 items per posting.

The Postal Act empowers and commissions RegTP to take decisions on compliance with the quality standards of the PUDLV. To this end RegTP exercises various measures, including regular quality measurements in the mail distribution system. These measurements currently focus only on DPAG's systems, as it is obliged by law to maintain the universal service. Letter delivery times are measured in order to determine compliance with the quality standard described above. The measurements are conducted nationwide and on an ongoing basis. The results are published every quarter, with delivery times expressed in the number of working days.

Random samples are taken by sending test letters to destinations throughout Germany. The sample size is approx 220,000 test letters per year. These are sent to around 1,200 test letter recipients by RegTP branch office staff according to a daily dispatch schedule that specifies times and destinations. Thanks to the size and structure of the sample, the results are representative of all letter post items posted with DPAG over the course of a day in letter boxes or over the counter in stationary facilities (auxiliary offices, agencies).

Compliance with the PUDLV letter delivery time quality standard

PUDLV quality standard ⇨	**J + 1 [1)] ≥ 80%**	**J + 2 [2)] ≥ 95%**
DPAG (annual average)	J + 1 ⇩ ACTUAL	J +2 ⇩ ACTUAL
2004	**87.9%**	**99.5%**
2003	86.8%	98.8%
2002	86.9%	98.6%
2001	86.6%	98.8%
2000	86.7%	99.0%
1999	86.0%	98.8%
1998	88.1%	98.9%

1) Share of letters with J+1 delivery time (day of posting plus one working day)
2) Share of letters with J+2 delivery time at most (day of posting plus two working days)

These results indicate that on an annual average, in 2004 around 88 percent of single letter post items posted over the course of a day in DPAG's letter boxes or stationary facilities reached their addressees on the next working day (J+1). In other words, as in the previous years DPAG fulfilled the quality standard of the PUDLV again in 2004, meeting its universal service obligation in this case also. According to the PUDLV, letter box clearance times must be determined in line with business requirements. Accordingly, RegTP's measurements assume a last letter box

clearance time of 5 pm. However, even assuming 6 pm the results for 2004 are 84.6 percent for J+1, which is still in compliance with the PUDLV quality standard.

Following an objection from the Federal Audit Office that was upheld by the Audit Committee of the Bundestag, RegTP discontinued the dispatch of test letters at the end of 2004. Yet the decision on compliance with the PUDLV national quality standard regarding letter mail transit times remains in the remit of RegTP. In deciding, RegTP will use other methods (eg test letters sent by a company independent from DPAG, applying the principles and minimum requirements of the European standard EN13850[*)]).

*) EN 13850 – Postal Services – Quality of Service – Measurement of the transit time of end-to-end services for single piece priority mail and first class mail

Prices and price levels for letter mail
DPAG's prices for main products under its exclusive licence

	until 31.12.02	01.01.03 to 31.12.04	from 01.01.05
Postcard	€0.51	€0.45	€0.45
Standard letter	€0.56	€0.55	€0.55
Compact letter	€1.12	€1.00	€0.95
Large-size letter	€1.53	€1.44	€1.44
Maxi letter	€2.25	€2.20	€2.20

Price level **PN** = $\sum_{i=1}^{i=n} p_i \cdot g_i$ where $g_i = \frac{m_i}{M}$

where $m_1, m_2, \ldots m_i$ = volume of products/services i
M = total volume ($M = m_1 + m_2 + \ldots + m_n$)
$P_1, P_2, \ldots P_i$ = prices of products/services i
g_i = weighting

The assumed volumes are based on the volume of these products sold in Germany. The calculation yields a price for Germany (with volume-weighted prices) of €0.71 (rounded). The price level itself is hardly informative. It becomes useful only when compared against the price levels of other companies or countries. A comparison against the price levels of other companies in Germany is currently not possible as the statutory exclusive licence currently held by DPAG still prevents other providers from offering the above products. Hence only an international comparison may be drawn.

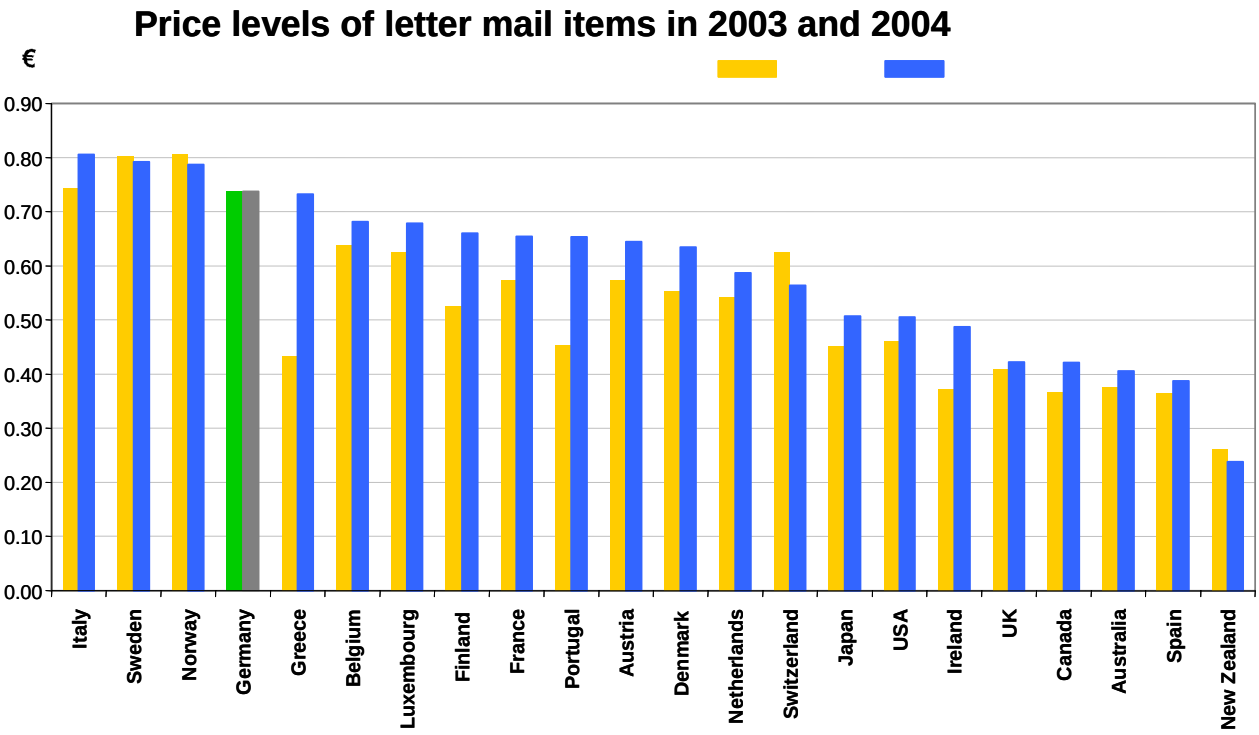
An international comparison of price levels as defined above may include several products with varying price structures (see table below for examples). It also irons out differences that could distort the comparison if it was restricted to one product only, eg a standard letter up to 20g.

Price and weight structures for letters up to 50g

As of October 2004	D [€]	UK [£]	A [€]	GR [€]	F [€]	USA [$]	B [€]	NL [€]
Standard letter (up to 20g)	0.55	0.28	0.55	0.47	0.50	0.37	0.49	0.39
Compact letter (20 to 50g)	1.00	0.28	0.75	0.67	0.75	0.60	0.79	0.78
Compact vs standard letter	**+ 82%**	**+ 0%**	**+ 36%**	**+ 34%**	**+ 50%**	**+ 62%**	**+ 61%**	**+ 100%**

From the countries in the comparison those products were selected that most closely correspond to DPAG's products, using the quickest mode of conveyance offered by the standard letter mail service for which no guaranteed transit time is given. The prices were weighted in line with the method applied in determining the German price level. The sum of the weighted individual prices yields the price level in € or other national currencies.

The price level in the countries under review was then converted based on consumer price parities as determined by the Federal Statistical Office in accordance with the German currency scheme. The German 'basket of goods' applied by the Office in this context represents the consumer spending of all private households in Germany (excluding rents and the purchase price of passenger vehicles) with respect to the goods in the basket and their weighting.



Provision of work sharing services, access to PO box facilities and information on changes of address

To encourage market entry and competition in the market for postal services under licence, the Postal Act obliges the incumbent provider to grant requesting market players access to its infrastructure and services. Agreements concerning such access must be submitted to RegTP to ensure, inter alia, that the incumbent complies with all provisions of the Postal Act.

Work sharing services

A work sharing service is a service that is normally offered as a full conveyance service under licence but in this case, minus those parts that are rendered by the requesting provider itself. Claims to such work sharing services may be made vis-à-vis a dominant provider of postal services subject to licence (section 28 of the Postal Act). In line with determinations made by Ruling Chamber 5, both customers and competitors of DPAG are offered access to work sharing services in both its outbound mail sorting centres (BZA), where outbound mail is consolidated, and the inbound mail sorting centres (BZE), which deliver incoming mail items. However, under the Postal Act competitors' access to work sharing services is restricted to the area not covered by the exclusive licence. In its Activity Report for 2002/2003 RegTP made reference to the impact of this access restriction, particularly in the field of consolidation and preparation for postal dispatch. It also highlighted the anticipated positive effects on competition and employment.

The following table illustrates the structure and number of agreements concluded in 2004 in accordance with RegTP specifications. These figures clearly demonstrate that competitors of DPAG (can) exploit the opportunities afforded them by work sharing agreements only to a limited extent.

Work sharing agreements in 2004

Item type ⇨		**Individual letter items**		**Infopost**	**Total**
Contracting party⇩	**Point of access ⇨**	BZA	BZE	BZE only	**Total**
End users		159	262	85	**506**
Competitors		1	1	1	**3**
Total		**160**	**263**	**86**	**509**

BZA: Outbound mail sorting centre (start)
BZE: Inbound mail sorting centre (end)

The Federal Association of Courier, Express and Postal Services (BdKEP) has filed a complaint with the European Commission concerning the restriction on access to work sharing services. The Commission believes this hinders competitors in

preparing their postal items for dispatch, which is in breach of European competition law and inconsistent with the provisions of the EU Directive on postal services. It has hence called on Germany to remedy the situation.

The Federal Cartel Office (BKartA) also believes this restriction on competitors' access to work sharing services to be an undue obstacle and has therefore asked DPAG to grant requesting competitors unrestricted access to work sharing services in the exclusive area also. RegTP supports the Federal Ministry of Economics and Labour (BMWA) in its deliberations on competitors' access to work sharing services, taking part in discussions on both the legal framework and possible amendments to the law. RegTP has also conducted an investigation of the economic impact that full access to work sharing services for competitors would have on DPAG.

Access to PO box facilities
A licensee enjoying a dominant position in the market for postal services is obliged to allow competitors, against payment of a fee, to deliver postal items to the PO box facilities it operates (section 29(1) of the Postal Act). In 2004 DPAG submitted 18 agreements on access to PO box facilities to RegTP. All agreements had been concluded in accordance with the specifications as authorised by Ruling Chamber 5.

Access to information on changes of address
An incumbent is also obliged to grant competitors access to information it holds on address changes (section 29(2) in conjunction with (1) of the Postal Act). In 2004 DPAG submitted 45 agreements on access to address change information to RegTP. Competitors were granted such access initially on a 'new-for-old' or 'do-it-yourself' basis. The 'new-for-old' variant involved matching a single address against new information online. In the 'do-it-yourself' method, DPAG handed over existing address change information, provided it fell within the relevant provider's area of activity, to that provider who then had to match the address against that information themselves. Agreements of this type were offered until April 2002.

Since May 2002 DPAG has offered requesting providers the 'black box' service instead. This is an encrypted electronic matching process that runs all address management and matching activities on competitors' computers. RegTP was requested by the administrative court to conduct a survey on access to address change information for competitors. The survey was designed to find out whether, and if so to what extent, competitors were satisfied with the black box service and whether it was defective in any way. Competitors would also be asked whether the black box method was capable of replacing the previous 'do-it-yourself' and 'new-for-old' methods. The survey was conducted during the 1st quarter of 2004 and found that the black box system was not capable of replacing the previous methods in light of its greater disadvantages. As a result, RegTP cannot dispense with its option to request reinstatement of the 'new-for-old' and 'do-it-yourself' methods.

Administrative court proceedings

In 2004 DPAG again brought an action before the administrative court in Cologne against licences issued by RegTP for higher quality services (so-called 'D' licences). However, the number of court proceedings has dropped since RegTP began including a revocation clause in its licence certificates and extension notices.

The Cologne court ruled on a number of test cases as early as in 1999, when it deemed that licences for same-day mail delivery were in compliance with section 51(1) sentence 2 no 4 of the Postal Act yet licences for overnight delivery, however, were not. In cases where the disputed licence or extension notification allows for same-day delivery, DPAG has finally withdrawn its actions and objections.

In cases where licences and extension notices allow the holder to offer track-and-trace services that correspond precisely to service type D4 (services with track-and-trace function) as published in RegTP's Official Gazette (Order 15/2004, page 829ff, annex 2, item B1), DPAG has also acknowledged their lawfulness and has withdrawn all relevant objections and actions.

Ruling again in the competitors' favour, the Cologne court on 13 November 2001 dismissed several complaints filed by DPAG against licences issued to providers of time-certain letter delivery. In these cases the Court upheld RegTP's view that this service type, too, complied with section 51(1) sentence 2 no 4 of the Postal Act and hence does not come under the exclusive licence.

An appeals ruling of the higher administrative court for North-Rhine Westphalia (NRW) concerning the issue of licences – specifically, what services come under section 51(1) sentence 2 no 4 of the Postal Act – took effect on 6 October 2003. It confirms the lawfulness of licences for overnight and time-certain delivery services. DPAG subsequently lodged an appeal with the Federal Administrative Court, which on 30 June 2004 issued a ruling that concerned only DPAG's complaint about formal errors, deciding that the higher administrative court had ruled in the matter without conducting the appeals case orally. The decision of the higher administrative court for NRW concerning the lawfulness of a postal D licence should not have been taken without oral proceedings as the case was extraordinarily difficult from a legal perspective. In terms of the actual complaint – the lawfulness of the licence – the Federal Administrative Court issued no statement. It has handed the case back down to the higher administrative court for NRW. As the higher administrative court has not yet set a date for the oral proceedings and a renewed decision on DPAG's appeal, a legally enforceable decision is still pending.

By resolution of 26 November 2004 the higher administrative court for NRW dismissed an end customer's request for admission of an appeal against a 26 July 2002 ruling of the administrative court in Cologne, thus reaffirming the first instance ruling. The complaint was directed against the price cap calculation decision taken by RegTP on 26 July 2002. The Cologne court had dismissed the suit as it did not deem the plaintiff's subjective rights violated by the decision. The contents of the notification were not investigated.

In an action brought by a consolidator against a decision of RegTP's Ruling Chamber 5 of 3 September 2001, in which his application for access to work sharing services was rejected, in the first instance the administrative court in Cologne suspended the proceedings in order to obtain a preliminary ruling from the European Court of Justice concerning 'whether European law could be interpreted as meaning that when a universal service provider applies special rates for business customers who inject pre-sorted postal items into the distribution system at points along the delivery chain other than points of access, that universal service provider is obliged to offer such special rates also to those companies that collect postal items from

senders and inject these, pre-sorted, into the system at the same points and under the same conditions as said business customers, without the universal service provider being able to reject this on the grounds that it is obliged to provide universal services.' The response from the European Court of Justice to the administrative court's request for a preliminary decision is still pending.

International affairs

Universal Postal Union

In consultation with BMWA RegTP plays an active role in international postal affairs at all levels, attending the annual conferences of the Council of Administration and the Postal Operations Council of the Universal Postal Union (UPU), a UN special organisation for postal affairs with 189 members.

The 23rd Universal Postal Congress that took place from 15 September to 5 October 2004 in Bucharest was attended by more than 1,500 delegates from over 170 member countries. The German delegation comprised representatives from BMWA, RegTP and DPAG. Numerous basic and operational resolutions were adopted from among more than 700 submissions. Among the most significant of these, from a regulatory and postal policy perspective, are:

Reform of the Universal Postal Union

A major change in terms of the organisational structure of the UPU is the decision by a large majority to establish a Consultative Committee that will replace the former Advisory Group. For the first time this body will enable the official involvement in the UPU of regulatory authorities and organisations alongside national postal providers (mainly representatives of private sector providers, industry, and other associations). Members will also include Council of Administration representatives from Spain, Benin and Japan as well as Postal Operations Council representatives from Barbados, the UK and Korea.

The Bucharest World Postal Strategy, an action plan for the next four years, was adopted and has the following objectives:

- To ensure the provision of good-quality postal services around the world;
- To improve quality of service and efficiency;
- To satisfy customer needs and requirements by broadening knowledge of postal markets and facilitating their development;
- To undertake postal reforms to ensure sustainable development of postal services;
- To strengthen and broaden cooperation and interaction in the postal sector.

Until the next Congress further reform proposals will be developed by Commission 1, 'UPU Reform', established by the Council of Administration and chaired by Germany. Through its chairmanship of Commission 1 Germany automatically gains membership of the Managing Committee together with other Commission chairpersons, the Director General and Deputy Director General, where it can exercise significant influence on the work of this body.

Terminal dues, remailing, extra-territorial offices of exchange

The new terminal dues system as developed by the Convergence Group was adopted by a large majority. The system it uses for categorising countries now

corresponds to that of the UNDP. In other words, countries with an average per-capita income of more than USD 4,700 per annum will receive lower payouts from the Quality of Service Fund (QSF).

At the same time the Council of Administration was requested to consider a possible reclassification of those countries that in 2002 received less than USD 65,000 from the QSF (which affects above all smaller countries whose postal infrastructure by experience tends to lag behind their general economic development).

Germany put forward two remailing proposals. If mail from German senders to German addresses is posted in bulk in a foreign country, it should be assumed that the sender intends to exploit the lower rates applicable in that foreign country, a situation that automatically triggers the application of remailing regulations. In such cases, beyond the possibility of demanding repayment of the applicable domestic rates it should be possible to return this mail to the postal administration of origin. Both proposals were dismissed. The status quo applies (ie demand for repayment of charges, once proof of remailing has been furnished by the destination postal administration).

As regards extra-territorial offices of exchange (ETOEs), it was decided by vast majority that these do not serve to fulfil universal service obligations and that for this reason, mail originating in ETOEs should be treated as commercial mail that is not subject to UPU regulations and hence does not have to be accepted subject to the agreed terminal dues. In any case the host country must first approve the establishment of an ETOE that is subsequently subject to the national legislation of the country in question.

Elections

Director General and Deputy Director General of the Universal Postal Union

Edouard Dayan (France) was elected Director General of the UPU, receiving 102 votes (Carlos Silva from Portugal received 63 votes). The only candidate for the post of Deputy Director General was Huang Guozhong (China), who was unanimously elected to the position.

UPU Council of Administration and Postal Operations Council

Germany was elected to the Council of Administration with the best results among the Western Europe group. It was also elected to the Postal Operations Council, achieving the sixth best result among the 16 industrialised countries.

Next Congress

The United Arab Emirates and Kenya had both applied to host the 24th Universal Postal Congress in 2008. Kenya was chosen by a 60 percent majority. The 24th Universal Postal Congress is scheduled to take place in August/September 2008 in Nairobi.

Miscellaneous

For the delivery of priority mail items worldwide the J+5 standard was adopted (day of posting plus five working days), which initially should be achieved in 50 percent of cases. The objective for 2008 is to increase this rate to 65 percent.

European Committee for Postal Regulation (CERP)
Within the European Conference of Postal and Telecommunications Administrations (CEPT), which comprises 45 countries, CERP is the body that deals with postal matters. Its Vice President is a representative of RegTP. RegTP attends the biennial CERP Plenary Meeting and is represented in the Working Groups on Regulation (priority areas: international liberalisation, World Trade Organization, definition of postal sector), Economics (priority areas: post office branch network, cost accounting) and UPU matters, as well as being part of the overarching Steering Group. The chairperson of the Working Group on Standardisation, through which CERP exercises its influence on the European Committee for Standardization (CEN), is a representative of RegTP. Further, the editorial team producing the CERP website, which also includes an overview of postal regulation in CEPT countries, is attached to RegTP.

European Union
Article 21 of Directive 97/67/EC of 15 December 1997 (Postal Directive) stipulates that 'the Commission shall be assisted by a committee composed of the representatives of the Member States (…)'. Germany is represented in this committee by BMWA and RegTP.

European Committee for Standardization (CEN)
Articles 16 to 20 of Directive 97/67/EC of 15 December 1997 refer to the setting of quality-of-service standards for universal services. Determining the method of measurement (principles and minimum standards) is the responsibility of Technical Committee 331 (Postal Services) of the European Committee for Standardization (CEN), which works on behalf of the European Union. The relevant bodies are advised by representatives of the regulatory authorities and, more frequently, postal providers. The draft standards most relevant to quality measurement, from a regulatory perspective, relate to the measurement of transit times, complaints, and loss rates. The objective is to develop minimum standards for these areas that can be applied in all countries. However, it is not intended to use these service indicators to measure providers' overall performance in such a way that would enable a direct comparison of these providers.

The European Commission has requested that work continue on producing further standards, extending existing standards to cover accession countries and situations involving several providers, and measuring transit times of parcels and the quality of service access and delivery, a brief already accepted by CEN.

Ruling Chambers

The new TKG also required an adjustment of the responsibilities for Ruling Chambers 2 to 4. The redistribution, made in the second half of 2004, is shown in the table below.

Ruling Chamber 2	Retail telephone service markets, wholesale and retail leased line markets, preselection, wholesale and retail public payphone markets
Ruling Chamber 3	Wholesale and retail broadband access markets, wholesale and retail mobile markets, broadcast transmission services
Ruling Chamber 4	Wholesale fixed public telephone network and local loop markets

Thus the responsibilities have been equally spread, bearing in mind the core compentences to date, and the conditions created for prompt decision-making.

Ruling Chamber 2
Rates regulation and the control of anti-competitive practices in the telephone, leased lines, public payphones and preselection markets
Under the provisions of the TKG 1996, the rates and rate-related components in the general terms and conditions for transmission paths and voice telephone services provided under section 6 licence classes 3 and 4 respectively were subject under section 25(1) and as provided for by sections 24 and 27 to approval by RegTP if the licence holder was dominant within the meaning of section 19 of the Competition Act (GWB) in the relevant market.

Following enactment of the new TKG on 26 June 2004, the rates and rate-related components in DTAG's general terms and conditions for telephone services and leased lines are now, until further notice, subject to ex post rates regulation according to section 39(3) and additionally to the special control of anti-competitive practices according to section 42 pending the completion of market analysis under sections 10 to 12 and any subsequent imposition of remedies by RegTP under sections 13 and 39. Thus it may be assumed, in line with section 150(1) in conjunction with sections 39(3) and 42(1), that the determinations of dominance in the voice telephone market made by RegTP prior to enactment will remain in effect and DTAG hence be classified as an undertaking with significant market power (SMP) pending the issue of a final order. Ruling Chamber 2 in 2004 pronounced on a total of 50 rates regulation, declaratory and anti-competitive cases (15 rates regulation cases under the old legislation, 10 approval cases under the new legislation, two anti-competitive cases under the old legislation, 16 anti-competitive cases under the new legislation, four declaratory cases under the old legislation and three under the new legislation). Altogether, 327 interested parties – not including the complainant – were invited to attend the oral proceedings.

Main rulings under the old legislation (before 26 June 2004)
***10 Cent-Tarif* discount tariff**
Approval of the *10 Cent-Tarif* optional rate plan submitted by DTAG on 19 March 2004 was denied by Reg TP. Subscribers paying a monthly premium of €3.63 (net) were to be able to make *City* and *Deutschland* calls for 8.62 cents (net), 10 cents (gross) per hour begun, around the clock. An assessment of whether the 10 cent tariff contained discounts within the meaning of section 24(2) para 2 of the TKG 1996 could be made solely, in light of its flat rate nature, by forecasting the average call patterns of the customer segment targeted. It was therefore crucial to determine the extent to which a 10 cent customer would make more calls (frequency of calling) and longer calls (call duration), on average, than a standard customer. Based on the experience of the *AktivPlus xxl sunday* discount tariff and DTAG's forecast of frequency of calling and call duration, the tariff would just about have covered costs, but the forecasting risks were not covered. The discount tariff was not therefore eligible for approval.

***EnjoyTarif* (*12 Cent-Tarif*)**
Following denial of approval for its *10 Cent-Tarif*, DTAG on 28 May 2004 filed for approval of another discount tariff, its *enjoyTarif,* with effect from 1 July 2004. DTAG kept the pricing principle of its *10 Cent-Tarif* with a flat rate charge for every hour begun, around the clock. The monthly premium was increased to €4.03 (net) and the flat rate call charge to 10.34 cents (net) or 12 cents (gross). In raising the charge, DTAG was complying with the Chamber's requirement for adequate coverage of forecasting risks. The tariff was then eligible for approval.

Main rulings under the new legislation (after 26 June 2004)
Cologne court's 6 September ruling on the approval requirement
In connection with the relief sought by DTAG for the BK 2a 04/009 case, Cologne administrative court on 6 September 2004 ruled in summary proceedings 1 L 1832/04 that the approval requirement for telephone package offers did not remain in effect under section 150(1) of the amended TKG. Although the operative provisions of the court ruling related only to the package offers addressed in the BK 2a 04/009 case, the underlying considerations of the ruling apply all the more to telephone service tariffs in respect of which determination of the approval requirement was merely part of the explanatory statement for earlier approvals. It therefore had to be assumed that the court would quash every further Chamber decision affirming the continued validity of the approval requirement with reference to section 150(1). Against this background there was no alternative but to reject filings on the grounds of the lack of legitimate interest in taking legal action. Because the determination of DTAG's dominance remains in effect under section 150, all rates previously subject to approval now require ex post controls.

Notification requirement for telephone service rates (markets 1 to 6 of the EU Recommendation)
Under Determination BK 2a 04/045 of 14 December 2004 DTAG was required, until the issue of a final order based on the outcome of the pending market definition and market analysis procedures, to inform RegTP of its rates measures for retail services for access to the public telephone network at fixed locations, for publicly available local and/or national telephone services provided at fixed locations and publicly available international telephone services provided at fixed locations two months prior to their planned effective date, in accordance with section 39(3) sentence 2 and

section 12(2) para 4 of the TKG. The reasons were as follows. DTAG is a telecoms service provider with significant market power in telephone services. This determination of SMP for DTAG in the retail services market derives from RegTP's findings in its Determinations BK2a 04/007, BK2a 04/013 and BK2a 04/014 of 25 June 2004. The findings of dominance made under the TKG 1996 remain in effect by virtue of the transitional arrangements set out in section 150(1) of the TKG 2004. Further, facts warrant the assumption that the obligations in connection with access issues and with carrier selection and carrier preselection will not lead to the regulatory aims set out in section 2(2) of the TKG being achieved (section 39(3) sentence 2 in conjunction with subsection (1) sentence 1 of the TKG) and that it is therefore necessary to require notification. While efficient regulation at the wholesale level can indeed reduce the risk of anti-competitive pricing, it is not enough in itself, ie without accompanying effective controls of an incumbent's anti-competitive practices, to consolidate as yet insufficiently mature competitive structures. Thus by 31 December 2004 RegTP had been notified by DTAG of three rates measures in all.

Access obligation for leased lines (markets 13 and 14 of the EU Recommendation)

Under case BK 2b 04/027 the Chamber on 30 November 2004 adopted a provisional measure under section 12(2) para 4 of the TKG requiring DTAG, until an order based on the outcome of the market definition and market analysis procedures for markets 13 and 14 of the Commission Recommendation of 11 February 2003 (OJ L 114 of 8 May 2003) is issued, to grant other undertakings access to transmission paths whose rates and rate-related components, as stated in the general terms and conditions, were subject to approval under section 25 of the TKG 1996. The rates for digital standard leased lines (SFV) and carrier leased lines (CFV), for the *Comfort Service* (dSFV) and for express fault repair (CFV) are therefore still subject to approval. Section 21 access obligations are likely to continue for leased lines, being as they are a vital input for competitors wishing to build out networks of their own. However, a definitive, nuanced assessment is not possible before completion of market analysis. The current benchmark thus applies in the meantime.

Special control of anti-competitive practices under section 42

Under the new division of responsibilities Ruling Chamber 2's remit now includes the special control of anti-competitive practices under section 42 of the TKG 2004. Under the new framework DTAG's competitors are, for the first time, specifically entitled to make applications; the Chamber must therefore investigate each and every claim of abuse separately.

Refusal to supply local loops

Following complaints from competitors, Chamber 2 opened abuse cases under section 42 of the TKG in order to investigate a possible abuse of SMP power by DTAG. The alleged abuse lay in DTAG's lack of non-discriminatory treatment of telecoms service providers obtaining, as end customers, AGB products at retail prices. A provisional order was issued pending a final decision, requiring DTAG to continue to supply providers with AGB services, ie ordinary and ISDN lines as set out in the general terms and conditions for the telephone service. DTAG was forbidden in particular to make supply contingent upon signing "conditional agreements".

The reason for opening the abuse case was that DTAG, since August 2004, had been refusing to supply other providers with lines for end customers, that is to say had been making supply contingent upon "conditional agreements", in a departure from previous practice. As a result, a number of providers such as broadnet mediascape communications AG, MCI WorldCom Deutschland GmbH, UUNET Deutschland GmbH, COLT Telecom Holding GmbH, BT (Germany) GmbH & Co. OHG, Celox Telekommunikationsdienste GmbH, QSQ AG and Arcor AG and the Initiative of European Network Operators (IEN) and the Association of the Providers of Telecommunications and Value-Added Services (VATM) and Easynet GmbH had filed applications with RegTP to open a case under the control of anti-competitive practices and to issue a provisional order. The Chamber's preliminary investigations yielded enough indication that DTAG was abusing its SMP position. In its view, it could not be ruled out that competition was being restricted through a discriminatory supply of ordinary and ISDN lines. Nor was there any objective justification for not supplying these AGB products, for this was not resale according to section 21(2) para 3 of the TKG, especially because these were not supplied on wholesale conditions and hence could not be the basis for a separate wholesale business model. Also, there was no reason in the Chamber's view to make the supply of such products dependent on a conditional agreement. DTAG must provide its end user products on a non-discriminatory basis, irrespective of how they were to be used, even if those being supplied were following business purposes of their own. This was no longer the case, in light of the conditions imposed. Rather, service providers were being excluded. Most importantly, companies could no longer act as full service providers. Requiring DTAG to continue supplying end user telephone lines until closure of the case was based on the consideration that its rights would not be unduly prejudiced by the provisional arrangement, as summary consideration had shown an assumption of abuse to be probable for the most part. Moreover, there would have been grave economic detriment to the providers, had the refusal to supply continued.

Processing preselection orders over electronic interfaces
DTAG in June cancelled the agreement on the electronic transmission of preselection order data containing a provision on liability exemption (so-called indemnity agreement) effective 15 September 2004, offering the companies instead a new contract with a liability exemption provision which, from the core network operators' point of view, one-sidedly places the burden on them. Following unsuccessful negotiation attempts with DTAG, Arcor AG & Co. KG and Smartline Telecom GmbH filed anti-competitive practice applications with RegTP under section 42 of the TKG. The main points of contention were:

- the written declaration of intent DTAG required from the customer for providing preselection with another core network operator,
- the arrangements on flat rate compensation,
- the lack of information from the core network operator that preselection had been discontinued, and
- winning customers back.

On account of its great complexity the case is not likely to be closed before the first quarter of 2005.

DTAG telephones precluding call by call and preselection
In a provisional order issued on 3 December 2004, RegTP stopped DTAG, until closure of the case, from effectively limiting its call by call and preselection obligations through selling its *T-Sinus 711 Net* and *T-Sinus 721 Net* telephones. This action was taken following complaints from a number of competitors about the *Sinus 711 Net* (analogue) and *Sinus 721 Net (ISDN)* fixed line phones DTAG sold in its T-Punkt and Internet shops. Both phones had the added feature "T-Com preselect". This means that the phone's software is programmed so as to automatically preselect the 01033 code every time the subscriber dials a number. In effect, the subscriber is no longer able to use the call by call or the preselection facility. In the Chamber's view, the restriction of this facility through sale of the *T-Sinus 711 Net* and the *T-Sinus 721 Net* phones constitutes anti-competitive detriment to the competitive opportunities of both core and access network operators. An important consideration in light of the urgency of the case was that, in the absence of a provisional order, DTAG would have been able to put more such phones on the market, thus indefinitely depriving buyers of call by call and preselection offers from other long distance service providers and depriving competitors of a substantial number of potential customers. The decision shows that the new TKG, in section 42 (Anti-Competitive Conduct by an SMP Undertaking) in conjunction with section 130 (Provisional Orders), offers good scope for putting a timely stop to abuse.

Ruling Chamber 3
Wholesale and retail broadband Internet access markets,
wholesale and retail mobile markets,
broadcast transmission services

Internet
Ruling Chamber 3 on 29 September 2004 approved the charges for the main broadband service currently available. DTAG continues to provide most of the broadband connections in Germany under the brand name T-DSL. The T-DSL ZISP product enables Internet service providers to offer T-DSL customers Internet services over a platform of their own by providing the "missing link" between the T-DSL connection and the competitors' Internet platform. The previously approved rate of €0.6325 for use of the basic T-DSL ZISP line was lowered to €0.52 for each 10 kbit/s unit of capacity. Compared to the price of €1.55 per 10 kbit/s which DTAG had filed for, this was a bigger reduction than last time. Thus the jump in wholesale broadband Internet prices that the competitors had feared did not come about. Besides approval of the lower charges the charges for ZISP access in the three bandwidths 34, 155 and 622 Mbit/s – not, however, the financial focus of the service – were raised beyond the level of those approved in the previous year, as added costs were recognised.

The broadband market is still growing rapidly. Over the last two years, the number of broadband DSL lines rose around 40 percent. The traffic carried on these lines even reached triple-digit growth rates. The changed network capacity investment requirements this might trigger is the main reason RegTP approved the ZISP charges for one year only. Thus it is more able to respond suitably to new developments. DTAG has applied to Cologne court for temporary relief. A decision on the application has not yet been taken.

Mobile radio
Porting charges
Ruling Chamber 3 on 29 November 2004 set the upper price limit for porting a mobile number at €29.95 (inclusive of VAT). The decision was triggered by a complaint about the porting charges of two providers, Alphatel and Drillisch, who had asked their customers to pay €116 (inclusive of VAT) for switching to another company. In ex post rates regulation proceedings the Chamber determined that the charge was inconsistent with the criteria of section 28 of the TKG. The complaint was made following a rough comparison with the prices charged in Germany and other countries, none of which exceeded €29.95. Drillisch and Alphatel were required to observe this ceiling with immediate effect. The two companies have applied to Cologne court for temporary relief. A decision on the application has not yet been taken.

Interconnection
The Chamber also set mobile termination charges in two proceedings. It was decided on 28 December 2004 that the basic price the two providers, E-Plus and O_2, could charge interconnected companies until the end of 2005 for terminating calls in their network was to be €0.1490 per traffic minute. Surcharges depending on the kind of technical implementation such as the number of points of interconnection, or PoIs, could be added. The charge was derived from an international benchmarking study by RegTP, recording and assessing – as in similar cases – the situation in the 15 EU countries (prior to 1 May 2004), Iceland and Norway and taking account not just of the technology deployed by the companies which differs from that of the two other GSM providers, but also of how the two German providers were positioned in the market.

Other business
Since enactment of the new regulatory framework the Federal Cartel Office (BkartA) has given RegTP the opportunity to state its views in merger control proceedings relevant to the telecoms markets. These comments are coordinated by Ruling Chamber 3. The most important case in 2004 concerned the merger application – subsequently withdrawn – from *Kabel Deutschland Vertrieb und Service GmbH & Co. KG* with the three former members of the DTAG Group *iesy Hessen GmbH & Co. KG, ish GmbH & Co. KG* and *Kabel Baden-Württemberg GmbH & Co. KG*. There was no prospect of clearance. A second case aimed at creating an independent, satellite-based transmission capacity for broadcast signals was given the go-ahead with RegTP's agreement.

Ruling Chamber 4
Wholesale fixed public telephone and local loop markets
Last year, Ruling Chamber 4 dealt with 78 new cases in all. Decisions also had to be taken in 19 cases for which filings had been made at the end of 2003. The Chamber's work, as in the previous year, focused on the access operators' demands to have non-reciprocal call charges introduced for their origination and termination services. Another focus was the interconnection cases between two long distance operators and two mobile companies and the subsequent rates regulation case in which the Chamber set charges for terminating calls in a mobile network for the first time. And finally, in the period under review, the charges for DTAG's main wholesale products had to be approved anew.

Charges for interconnection links (without co-location)
In a ruling issued on 31 March 2004 (BK4b-04-004/E21.01.04) the Chamber approved DTAG's new charges for interconnection links (so-called ICAs) from 1 April 2004. The links include the switching and transmission equipment needed at the point of interconnection between networks. Under the ruling, the one-off provisioning charge for the "Customer Sited...2 Mbit/s" and "Physical Co-location" variants was set at €498. An annual charge of €915 was approved for "Customer Sited" and €1,048 for "Physical Co-location". The approved charges are all lower than those proposed by DTAG (5.9 to 38.6 percent lower, depending on the variant), following reductions by the Chamber, notably in imputed rate of interest, rental costs and process times. All the same, some of the approved tariffs were higher this time round, mainly because DTAG, in response to recommendations from the Chamber in previous rulings, had improved its cost statements, making hitherto disregarded cost elements now eligible for recognition. Competing companies had been warned that improved cost statements could mean higher charges. Approval of the charges is limited to 30 November 2005.

Local loop access and line sharing charges
In a ruling issued on 1 April 2004 (BK4a-04-005/E26.01.04) the Chamber approved charges for access to the local loop at the primary connection point, or PCP, for the first time. The charges approved hitherto were just for access to the local loop at the main distribution frame, or MDF. The PCP is the point in the access network between the MDF and the end customer's line at which several distribution cables join to form a main cable; as such, it is a more unbundled access variant. Access at the PCP is necessary for competitors in particular in areas where access to "bare wire" is only possible there because optical fibre has been installed in the main cable area. Under the 1 April ruling, the monthly rental for access at the PCP is €8.44 for the two-wire copper pair variant, both with and without high bit rate use. For the basic variant, simple transfer without work at the end customer's, competitors must pay a one-off charge of €65.01 or €95.09 € for the high bit rate variant. The monthly rentals have been approved until 31 March 2005 and the one-off provisioning and termination charges until 30 June 2005. This secures consistent periods of validity for the charges for the different forms of access.

The Chamber on 25 June 2004 issued two more important rulings on local loop access charges. In the first, new one-off provisioning and termination charges were approved with effect from 1 July 2004. These charges are paid by competitors once – in addition to the monthly rental – when they rent or return loops to DTAG. For the most common variant, transfer of a two-wire copper pair without work at the end customer's, a provisioning charge of €47.97 was approved. This price is some 15 percent lower than the last approved charge and even 35 percent lower than the charge DTAG had filed for. The termination charges for most of the access variants were also lower than the old ones. For termination of the simple two-wire copper pair when the end customer switches to another provider or returns to DTAG, competitors pay 36 percent less, €19.95 only, instead of €31.21. When the end customer does not change provider at the same time, the termination charge falls 22 percent from €47.09 to €36.65.

The second ruling was concerned with line sharing charges. When the line is shared, the frequency band is divided into a higher and a lower portion. The lower portion can

still be used for instance by DTAG for voice services and the upper portion can be used by a competitor for data services (typically for high speed Internet access based on DSL). A monthly rental of €2.43 was set for access to the high bit rate portion of the loop with effect from 1 July 2004. Thus RegTP followed DTAG's proposals for a charge markedly lower than the last approved price of €4.77. By contrast, the one-off provisioning and termination charges approved were lower than the prices DTAG had filed for. In future, competitors must pay €60.82 for simple transfer and €62.92 for termination. All the charges were approved for a period of one year ending in June 2005.

Access network operator charges
In a total of 35 cases the Chamber, in autumn 2004, had to decide on the level of termination charges that access operators can charge DTAG for terminating calls to customers in their networks. Operators that had submitted applications to have charges set were allowed to ask, on average, 25 percent more than previously for use of their networks and more than DTAG for like services. In making these decisions, RegTP had to follow the dictates of the new Telecommunications Act that had come into force during proceedings on 26 June 2004. Accordingly, the prices charged by these companies – none of which had been found to be dominant – were judged not by a strict efficiency criterion but in terms of anti-competitive pricing. In line with the legal requirements, a benchmarking exercise was carried out as the main guide. This showed the prices of competitors in the peer European countries to be some 17 percent higher than the applicable German prices. Allowing for a reasonable safety margin the Chamber then concluded that all charges 25 percent or more higher than the current ones were anti-competitive. This ruling compensates the alternative access operators for their later start and for their initially lower customer base, compared with the incumbent's. In the medium term, the charges will even out. Higher charges of this nature can therefore be transitional only. The charges had to be ordered since the competitors had not been able to reach contractual agreement with DTAG. They are valid until 31 May 2006.

Last year, the Chamber had to set the level of termination charges for alternative access operators in a total of 15 cases. The rulings could not be carried out on account of decisions from Cologne administrative court and Münster higher administrative court. Both court decisions, however, were made under the terms of the TKG 1996.

DTAG and virtually all the competing companies have agreed not to contest in court the orders issued since September. Hence there is now a large degree of legal certainty as regards non-reciprocity, a hotly contested matter for some time, and the specific levels of access operators' termination charges.

Termination charges for mobile calls
The Chamber, on 8 November 2004, ruled on a price proposal from vodafone D2 submitted in response to a regulatory order requiring it to provide interconnection with 01051 Telecom.

In the ruling, the Chamber ordered a per minute charge of €0.1432 for the period 1 July 2004 to 14 December 2004 and of €0.1320 from 15 December 2004 for terminating calls in vodafone D2's mobile network. This decision, likewise reflecting the new TKG, was based on an international price comparison. The comparison

showed that the charges vodafone D2 had filed for were lower than the corresponding charges in the UK, France, Italy and Spain and therefore could not be called anti-competitive. These countries had been chosen for comparison as they were the most similar in terms of surface area, population, customer base and market maturity at the time. The interconnection order and subsequent rates regulation procedure were necessary because the two companies, having very different ideas about price, had not been able to agree on the level of charges for terminating calls in vodafone D2's network.

Local loop access order
Following completion of the national consultation procedure, part of the market analysis for local loop access (market 11 of the Commission Recommendation), the outcome of which shows DTAG to have significant market power, the Chamber began preparations for a regulatory order obliging DTAG to grant its competitors unbundled access to its loops. The national consultation was published in the Official Gazette in December along with publication of the draft decision.

Ruling Chamber 5
Rates regulation and special control of anti-competitive practices in the postal market
Cash on delivery (COD)
In early 2004 Ruling Chamber 5 reviewed a filing from DPAG on the COD product. It first had to clarify whether DPAG's planned amendments to the general terms and conditions governing its COD product had to be assessed within the meaning of section 27 of the Postal Act, hence requiring a filing and approval in accordance with sections 19ff of the Postal Act. The filing for rates approval subsequently submitted by DPAG was special in that it did not entail a change in rates (the €2 charge remained unchanged); rather, the product's features had been amended. The obligation to provide evidence was eliminated, and track-and-trace introduced as an additional service feature for COD items. On balance, these changes had no effect on the price so the old rate continued to be applied to the new COD product.

Access to change of address information
Due to the expiry of the existing rates approval, during 2004 the Ruling Chamber again reviewed the rates for access to change of address information. The first rates approval for the so-called black box method, the procedure underlying the first decision and entailing the transmission of new addresses in encrypted format, was granted in 2002 under the proviso that the advantages as portrayed by the applicant would have to be evidenced in day-to-day practice in order for this new method to replace the existing, unencrypted access methods 'new-for-old' and 'do-it-yourself'. After the Ruling Chamber had verified the basic feasibility of the black box method in trial runs and no competitors had filed objections during the rates approval procedure, it once again gave its approval. The Ruling Chamber examined the expenses incurred by DPAG in connection with the black box method from an efficiency perspective, using existing experiences and cost documentation submitted by the applicant. Accordingly, the Ruling Chamber approved a rate of €54.70 – slightly less than the previous rate – for the one-off supply and installation of the necessary components alongside a rate of €0.16 for each returned record. These rates were approved for the period 1 July 2004 to 30 June 2006.

Access to PO box facilities

Following an application by DPAG, due to the expiry of the existing approval the Ruling Chamber again reviewed the rates applicable to access to PO box facilities in accordance with sections 29(1), 28(2) and 20 of the Postal Act. For the first time access was granted by the applicant for all higher-quality service types excluding overnight delivery. As costs of efficient service provision, rates were approved in the amount of €0.57 per posting, plus €0.04 per item, for the period 1 July 2004 to 30 June 2006. The price per posting hence dropped from €0.58 to €0.57 while the price per item remained constant at €0.04.

Price cap procedure

In autumn 2004 it was time for the Ruling Chamber to take its third decision on DPAG's filing for approval of the rates for all postal services in the so-called 'product baskets' (price cap procedure). It was verified whether the price reductions, ancillary terms and conditions and baskets that were stipulated in the price cap calculation of 2002 – in other words, the criteria used to group services and identify standards for the price cap regulation of letter items up to 1,000g and addressed catalogues up to 100g – had been complied with. As all conditions were met, the rates for the third price cap period from 1 January 2005 to 31 December 2005 were approved in accordance with the application by determination of 23 November 2004. The decision was taken subject to the proviso that monopoly and competitive products may not be put together for the purpose of granting particular discounts.

Provision of work sharing services

In the context of controlling anti-competitive practices, in 2004 the Ruling Chamber reviewed an application for an interim order against DPAG. The dispute concerned discounts granted on the posting volumes of a cooperative that had switched from giving its items serial numbers to the so-called separate numbering procedure. This entails the serial numbering of items destined for one routing region, with the last item in each group receiving the cumulated figure for the entire posting volume in addition to its own serial number, plus the submission of a posting record that states the number of items per routing region as well as the total figure. DPAG had declined to grant discounts for items that were separately numbered rather than carrying serial numbers. In light of the risk of insolvency for the cooperative and a rough assessment of the facts of the case, the Chamber issued an interim order stating that discounts had also to be granted for separately numbered items, as all main arguments appeared in favour of the cooperative.

In the subsequent principal proceedings the Ruling Chamber examined in depth whether the separate numbering system was to be considered equal to serial numbering. It concluded that while the posted items should continue to be serially numbered, the separate numbering method should be considered at least equal to serial numbering. Both numbering systems fulfil the requirements for the necessary rates control procedure on the part of DPAG.

Service of documents

One special aspect of regulation concerns the approval of rates for the service of documents in accordance with the German Code of Civil Procedure and other laws governing service in administrative procedure ('service of documents'). In accordance with section 34 of the Postal Act, the rates regulation provisions in section 20(1) and (2) of the Postal Act are applied to all providers of such qualified conveyance

services. The requirement that rates may not include surcharges or discounts and not be discriminatory hence stretches to cover all providers of this kind of service, even though it is normally only applied to dominant providers. In consequence, this requirement prohibits providers from offering customer-specific rates. Conversely, it is legitimate to offer regional or volume-based rates, an option increasingly used by service of document providers. At the same time, the approved rates are dropping. The unweighted average approved rate is currently €3.72 excluding VAT. Providers continued to expand their area of operation in 2004. DPAG's rate of €5.60, approved in 2003, still applies. In 2004 approvals were granted to a large number of providers with predominantly regional operations, but also to some that are active nationwide. Rates applications were received from licensees new on the market, along with applications for rate amendments from established licensees already in possession of valid rates approvals. In total, 161 rates approvals for service of documents were granted in 2004.

Ruling Chamber proceedings in 2004

Ruling Chamber	Rates regulation		Control of anti-competitive practices		Order		Interconnect/ access orders		Other proceedings (arbitration, complaints, approvals)		Total number of proceed-ings	Invitations to attend
					Deter-mina-tions under s 10, 11 TKG	Obliga-tions im-posed						
	T	P	T	P	T	T	T	P*)	T	P	T and P	T and P
1					**3**							
2	**25**		**18**						**7**		**50**	**327**
3	**2**		**3**				**2**		**27**		**34**	**93**
4	**50**					**1**	**27**				**78**	**286**
5		**165**		**1**				**7**			**172**	**2**
Total	**77**	**165**	**21**	**1**	**3**	**1**	**29**	**7**	**34**		**334**	**708**

*) Access to PO box facilities, change of address information, provision of work sharing services

Regulatory Authority

Function, structure and core tasks

RegTP was set up under section 66(1) of the TKG with effect from 1 January 1998 as a higher federal authority within the scope of business of the Federal Economics Ministry. It took over the responsibilities of the now defunct Federal Post and Telecommunications Ministry (BMPT) and the Federal Post and Telecommunications Office (BAPT).

First and foremost, RegTP's remit is, through regulation, to promote competition in telecoms and postal markets, to guarantee appropriate and adequate services throughout the country and to provide frequency regulation arrangements. These responsibilities are detailed in the TKG and in the PostG of 22 December 1997 and are regulated additionally in ordinances and other implementing provisions.

Further tasks flow from other specialty laws such as the German RTTE Act, the Amateur Radio Act and the EMC Act. RegTP is the competent authority under the Electronic Signatures Act, enacted in 1997 and amended in 2001, and as such is

tasked with setting up and monitoring a secure and reliable electronic signatures infrastructure. RegTP's powers were widened significantly by enactment of the new TKG on 25 June 2004 (see section 67, powers with regard to number misuse / diallers), putting it in a position to make a yet greater contribution to consumer protection. A further major challenge for RegTP lies in applying the new Energy Industry Act (EnWG), at present in the status of government draft of July 2004.

The following is an outline of RegTP's remit.

RegTP's tasks and workflows are complex and wide in scope. They range from highly specialised cases addressed in quasi-judicial proceedings in its core regulation areas right down to its nationwide presence for technical trouble-shooting. Its task-oriented organisation, enabling RegTP to deal with these tasks efficiently, is described in the following.

The **Ruling Chambers,** in the telecoms sector, take decisions in ex ante and ex post rates approval cases, on anti-competitive practices and in cases of special network access, including interconnection. In the postal sector they take decisions primarily on whether or not to impose universal service obligations, on issuing invitations to tender for services, on approving rates and on changes to general terms and conditions that affect prices. The President's Chamber issues rulings in award proceedings held on account of scarce spectrum resources and in universal service cases. The number of cases handled shows the need for regulation in a market still transitioning from monopoly to competition.

The **departments** address central administrative and specialist matters. These include economic and legal aspects of regulation in the telecoms and postal sectors and technical issues relating to spectrum, standardisation and numbering. Promoting the development of new generation networks and radio systems, RegTP participates in international standardisation bodies. This standardisation facilitates the uniform spread and use of networks and radio systems in areas such as mobile communications, broadcasting and numbering. Also, the departments provide specialist support for the Ruling Chambers.

Combating the misuse of premium rate services continues to be a major challenge. Another focus is the transmitter site database for transmitters operating above a specified power level. Major services to the consumer include the conciliation procedure set out in section 35 of the Telecommunications Customer Protection Ordinance, and consumer protection. RegTP's flexible internal structure enables it to deal with these efficiently.

As regards regulation of the gas and electricity markets, the government draft of July 2004 for an amended Energy Industry Act (EnWG) provides for a regulator. Under its wider remit RegTP will then create the environment for competition in the upstream and downstream gas and electricity markets by unbundling and regulating the grid. It will provide non-discriminatory access to the grid and keep an eye on the transmission and distribution prices charged. RegTP will bring its experience of regulating the telecoms and postal markets to bear so as to provide lean, practicable regulation for the new markets. A start-up team was established in early 2004 to pave the way. Further members of staff are currently being recruited and trained. The

new **Energy Department** will include engineers as well as legal and economic experts to make sure it has a qualified team ready to start work as soon as the legislation is enacted.

To emphasise RegTP's "corporate identity", the work of the regional offices – the local points of contact with consumers and the industry – is overseen and coordinated by a separate department.

The regional offices are responsible for technical issues. They provide advice, for instance, on compliance with the TKG and with electromagnetic compatibility provisions. They are also responsible for frequency assignment for mobile radio and PMR systems, for example. Another important area is the resolution of radio interference using state of the art facilities, monitoring compliance with regulations generally and carrying out radio monitoring and inspection orders. The regional offices' responsibilities also cover monitoring compliance with the terms and conditions of postal licences, for instance. As a result of certain tasks (such as the processing of medical allowances for all the staff, call centres) being transferred to the regional offices, the headquarters can thus focus on its core tasks and local staff are meaningfully employed.

Streamlined organisation (as of March 2004, there were only 10 regional offices with an administrative unit, and regional office numbers are to be steadily reduced) is to enhance efficiency and service provision. Decisions on the closure and concentration of regional offices take account of fundamental aspects such as infrastructure, closeness to the customer and the market, nationwide presence, and cost. Staff levels are adapted to requirements in a socially acceptable manner.

Human resources
A modern staff management system is a priority at RegTP. When there are constraints on staffing levels, it is even more necessary to deploy staff optimally. Yet it will only be possible to do so if staff planning takes account of work requirements and the skills and inclinations of the staff in equal measure. Only when both elements – pro-active, requirements-dictated, deployment on the one hand and motivated staff on the other – are made to coincide can RegTP's functions be performed cost-effectively and efficiently even in times of tight budgetary resouces.

RegTP's highly inter-disciplinary field of activity requires experts from a wide range of backgrounds. These include law, economics, engineering, mathematics, information technology and administration. RegTP has around 2,233 members of staff whose posts are taken from four civil service grades (senior, upper, medium, basic). These grades are also applicable to staff who are not civil servants.

In 2004, RegTP again provided places for trainees. A total of 25 young men and women joined RegTP as office communication or electronic equipment and systems trainees.

Analysis of staff by grades:
Senior grade (around 233 members, including some 70 graduate engineers)
These posts are filled by legal experts and economics and business economics graduates with various specialisations. Many are communications engineers. A small number are graduates in disciplines specific to their particular field of work.

Upper grade (around 759 members, including some 640 engineering and technical specialists)
Most of the non-technical staff are administrative and business economics graduates from higher education colleges. Most of the technical staff are communications engineers.

Medium grade (around 1,128 members, including some 475 technical staff)
The large majority of non-technical staff have completed civil service traineeships in administration. The technical staff have had vocational training as telecoms mechanics or communications technicians.

Basic grade (around 63 members, including some 17 technical staff)
These staff, most of whom have completed apprenticeships, work in a variety of areas such as internal administration or messenger services.

Budget
RegTP's income and expenditure is budgeted for in section 09, chapter 0910 of the federal budget. For the most part, this chapter is incorporated in flexible budget management. The tables below show RegTP's income and expenditure budget for 2004 and 2005, and performance for 2004.

Income

Type of income	2004 target €'000	2004 performance €'000	2005 target €'000
Administrative income	75,492	68,285	94,430
including			
1. Telecoms fees, contribution and other charges	74,516	67,060	93,450
2. Fees and other charges under the PostG	84	114	90
3. Other administrative income	892	1,111	890
Other income	19	10	15
Total income	**75,511**	**68,295**	**94,445**

Since the budget law has not yet been promulgated for the fiscal year 2005, the targets for 2005 are estimates from the 3rd reading in the German Bundestag.

Income, particularly from the contribution charges levied under the Ordinance concerning Contribution Charges for the Protection of Interference-Free Frequency

Usage, was less than expected. Most of this income will be booked in the fiscal year 2005.

Expenditure

Type of expenditure	2004 target €'000	2004 performance €'000	2004 performance vs target %	2005 target €'000
Staff costs	85,475	87,729	102.6	88,440
General administrative expenditure and appropriations	32,864	28,961	88.1	32,471
Investments	14,075	12,323	87.6	11,515
Total expenditure	**132,414**	**129,013**	**97.4**	**132,426**

Overall, performance figures remained below target. The reason for this was provisional budgeting until the end of March 2004, allowing only a limited outflow of funds.

Strategic Plan 2005

Under section 122(2) of the TKG RegTP must draw up a Strategic Plan listing the matters of legal and economic policy to be addressed by RegTP in the current year. The Plan is also to be included in the Annual Report. Going beyond the statutory requirement RegTP has also included all the fields of activity in which matters of fundamental importance are expected for 2005. As provided for in section 120 para 5 the Advisory Council gave assistance. A public consultation was held, as required by section 122(2).

The Strategic Plan is a list of issues for priority treatment in 2005. It cannot anticipate the outcomes of consultations or of Ruling Chamber or other cases.

Telecommunications

I. Promotion of the development of the internal market through implementation of the new regulatory framework

Implementation of the new framework in Germany is central to regulation. The regulatory aim of promoting the development of the internal market is written into the new Telecommunications Act, which came into force in 2004. The Act takes account of the new European regulatory framework and dovetails national decisions with the European Commission and the other Member States. RegTP will extend cooperation with the other national regulatory authorities (NRAs) to take promotion of the internal market forward. It is becoming clear, for instance, ahead of the study of the wholesale national market for international roaming, that a concerted approach by the Member States will be necessary if a market-driven outcome is to be achieved. This is but one of many cases RegTP will address, providing input also in the relevant international bodies such as the Independent Regulators Group and the European Regulators Group.

Administrative orders

Priority was already given in 2004 to carrying out market definition and market analysis procedures and drafting the administrative orders based on these for the markets* the Commission has defined. Yet this will still account for a considerable part of regulatory activity in 2005. Regulatory activity will also include national consultations on the draft proposals and carrying out the consolidation procedure in Brussels.

Also required besides the administrative orders, depending on the obligations imposed, will be carrying out rates approval and other procedures. It will also be necessary to consider whether fair competition in the markets is secured in such a way as allows regulation to be rolled back.

In individual cases, it may be necessary to adopt provisional measures under section 12(2) para 4 of the TKG in order to take necessary action in advance of an administrative order.

As part of these determinations, a number of conceptual studies will be necessary to clarify matters of legal, economic and technical policy.

II. Encouraging efficient investment in infrastructure and promoting innovation

RegTP has already engaged in promoting innovative networks and services in the past, and will continue to do so in 2005 under the dictate of technological neutrality. Encouraging efficient investment in infrastructure will also feature in 2005; this will be reflected in conceptual studies – reducing non-reciprocal termination charges, for instance – and in particular decisions.

1. Framework for Voice over IP

Concretising the framework for Voice over IP is most important. This will be done on the basis of the consultation in 2004, whose results will give market players further planning certainty in, for instance, numbering, providing access to emergency services and access models. The European context will also have to be borne in mind. Decisions are to be taken such that innovations are promoted by regulatory activity and efficient investment in infrastructure encouraged.

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*In the Commission Recommendation of 11 February 2003 on relevant product and services markets within the electronic communications sector, these are as follows:

1. Access to the public telephone network at a fixed location for residential customers
2. Access to the public telephone network at a fixed location for non-residential customers
3. Publicly available local and/or national telephone services provided at a fixed location for residential customers
4. Publicly available international telephone services provided at a fixed location for residential customers
5. Publicly available local and/or national telephone services provided at a fixed location for non-residential customers
6. Publicly available international telephone services provided at a fixed location for non-residential customers
7. Minimum set of leased lines (up to and including 2 Mbit/s; for end users)
8. Call origination on the public telephone network provided at a fixed location
9. Call termination on individual public telephone networks provided at a fixed location
10. Transit services in the fixed public telephone network
11. Wholesale unbundled access (including shared access) to metallic loops and sub-loops for the purpose of providing broadband and voice services
12. Wholesale broadband access (covers bitstream access)
13. Wholesale terminating segments of leased lines
14. Wholesale trunk segments of leased lines
15. Access and call origination on public mobile telephone networks
16. Voice call termination on individual mobile networks
17. Wholesale national market for international roaming on public mobile networks
18. Broadcasting transmission services, to deliver broadcast content to end users

RegTP will also consider whether VoIP services can be categorised as part of existing markets, or whether they will tend to create a separate market.

2. Broadband access
Closely related to questions of VoIP policy are decisions to do with the wholesale broadband access market. This market also includes bitstream access, whose regulatory implementation is expected to spur the development of a competitive broadband market. Broadband access will enable a wealth of innovation and new services. Promoting further growth by providing a range of inputs (unbundled loops, bitstream access, line sharing, etc) embedded in a balanced rates regulation concept is therefore highly important. Thought must also be given to how wholesale products possibly affect one another and to how particular wholesale products should be moulded so that efficient investment in infrastructure and innovation is promoted.

3. Spectrum management
The following is planned with a view to promoting competition and innovation:

- Drawing up a plan to make the use of spectrum more flexible. The plan will also include considerations on the transfer of frequency usage rights and on spectrum trading. A study is to be commissioned.

- Likewise, giving thought to adapting the duration of the GSM licences in order to create certainty for network operators and service providers in good time. RegTP will carry out a consultation.

- Drafting concepts on the use of new radio applications. In the main, the focus will be on WIMAX and wireless broadband transmission paths in the 3.5 GHz band for fixed point to multipoint links.

- Further frequency award proceedings for DVB-T and T-DAB in order to take digital broadcasting forward.

4. Electronic signature
This is an important innovation. In 2004, RegTP's Trust Centre was upgraded so as to meet the needs of the market and to create the proper environment for the greater take-up of electronic signature. System interoperability is now guaranteed as a result of the upgrading. Further technical adjustments will be necessary to continue to provide a high degree of security. Increasing key length is one of the measures planned for 2005.

The amended Electronic Signatures Act is currently on its passage through parliament. It will also have implications for RegTP's Trust Centre. The necessary action will be taken in 2005.

Also, RegTP has a consulting role in a number of projects being carried out by the Economics Ministry and other departments using electronic signatures (Jobcard, eCard, health insurance cards, electronic IDs, etc). These are all to be given priority in 2005.

III. Securing fair competition and promoting markets with sustainable competition

Considerable action will be directed at securing fair competition. The promotion of markets with sustainable competition is one of the central aims of RegTP's work in 2005.

1. Rates regulation policy issues

A number of policy issues deriving from enactment of the new TKG on the one hand and from the trend towards more complex pricing plans on the other will need clarification. Specifically, the details of section 28 investigations (determining what constitutes dumping levels, drawing up criteria for determining a margin squeeze, criteria on the replicability by efficient operators of bundled products) need to be made concrete. This will almost certainly include assessing the effect of flat rates on competition. RegTP is aware of the implications of rates regulation measures for the promotion of efficient investment in infrastructure, in the access area, for instance.

2. Consistency requirement

Consistent pricing is essential if there is to be a competitive environment in which fair competition between companies with different network and service concepts can flourish. Mindful of the consistency requirement of the new TKG, RegTP will therefore continue to work towards securing consistent rates regulation. Hence it will be one of the considerations underpinning every pricing decision. As a flanking measure, RegTP will evaluate the workshop held at the end of November 2004. A study was prepared beforehand by WIK Consult, the findings of which are available on the Internet. The schedule of responsibilities has been amended, and arrangements on securing the consistency requirement took effect with adoption of the new rules of procedure.

3. Network interoperability

A lack of interoperability is likely to prove a persistent stumbling block to fair competition. Against this background, conceptual regulatory ideas for next generation networks must be developed rapidly, building on the existing interoperability and open application programming interface (API) arrangements, discussed, in light of converging networks and applications – fixed, mobile, broadcasting – with all concerned and described in the form of key elements.

4. Promoting competition in particular markets

The examination of reference offers for mandated access services, provided for by the new TKG for the first time, is one important activity. Unbundled access to the local loop and interconnection are two examples. The need for regulatory action with regard to Internet access for end customers is to be studied. This is not, it is true, the subject of Commission requirements, but the study might indicate a need for regulatory intervention. In addition, fundamental issues (eg unbundling, pricing, etc) will need clarification in connection with DSL resale.

Preselection obligations for SMP undertakings, their imposition and presentation, will also be studied. This could include an investigation of abuse in connection with processing preselection orders.

Decisions will be taken in 2005 about allocating costs for the provision of subscriber data, to bring about fair competition for alternative service providers.

In view of current proceedings, further action in 2005 in connection with opening the public payphones market cannot be ruled out.

IV. Safeguarding user and consumer interests

RegTP has always felt particularly committed to consumer protection issues. And application of the user and consumer protection provisions now incorporated in the TKG 2004 as provided for by the Telecommunications Legislation Amendment Act (Bundesrat printed paper 92/05), set for enactment in 2005, will take this work seamlessly forward. After all, the steadily growing number of queries and complaints shows that a pro-active approach to consumer protection is becoming more and more important.

1. Measures to combat number misuse

Enactment of the new consumer protection provisions in the TKG will occasion a review, in light of experience gained, of the regulatory order setting out minimum requirements for diallers and registration procedures. The aim must be to give consumers even better protection. At the same time, it will be necessary to observe what effect the planned widening of the existing provisions in the TKG to combat the misuse of premium rate numbers will have on other number ranges. This will be one of the aspects feeding into a decision about whether or not a new overall number planning strategy should be drawn up next year.

2. Quality of service parameters

Protecting consumers in the liberalised telecoms market, in particular providing transparent information for guidance, continues to be one of RegTP's top priorities. Thus the draft Telecommunications Legislation Amendment Act requires contracts to include information about the nature of the services offered and the main data concerning them. RegTP can also require providers to publish information on the technical characteristics of their services. RegTP is called upon to introduce benchmarks and procedures for determining data for publication as soon as possible.

3. Emergency calls

An interface between public networks and emergency service centres is to be provided in cooperation between fixed line and mobile operators, emergency service authorities and equipment manufacturers so as to achieve uniform, national access to emergency services. In connection with this is the international standardisation of telecoms in emergencies (preference signalling for decision-makers and emergency organisations; local information for 112 calls). This work is also in the interests of public security.

4. EMC Directive

Transposition of the new EMC Directive into the German EMC Act brings new challenges and market surveillance procedures for RegTP, particularly as far as conformity assessment is concerned. Present levels of electromagnetic compatibility must be maintained in the consumer's interest. Thus RegTP also

participates in national and international EMC standardisation activities to achieve this goal.

5. EMF database and measurement specifications

Applying personal protection limits to radio transmitters and documenting local immissions tests (electromagnetic field (EMF) measurement programmes) is another of RegTP's responsibilities. Plans for 2005 include updating the measurement specifications to reflect new radio engineering developments and putting portable EMF monitors, which can take independent measurements over a period of several months, into service in individual places. The results will be made available on RegTP's website, in its EMF database, for everyone who is interested, as are the results of the measurement programmes which have been carried out for some years now.

V. Securing efficient and interference-free use of frequencies

1. Frequency Usage Plan

The Frequency Usage Plan is is the basis for the efficient and interference-free use of frequencies and for frequency assignment. The current Plan will be updated in its entirety in 2005.

2. Radio compatibility

In the coming year, determining suitable compatibility criteria for ultra wideband (UWB) technology will be a focus of RegTP's technical regulation. UWB technology spreads the signal energy over a wide swathe of the spectrum, affecting a number of radio services. RegTP's aim is to facilitate the introduction of new technologies while protecting existing services. Compatibility requirements have to be agreed at international level.

VI. Public security

RegTP will continue in 2005 to perform functions to enhance public security.

1. Technical implementation of intercepts

RegTP's activities for the technical implementation of intercepts are a valuable contribution to safeguarding public security. One of its tasks is to draw up the technical directive (TR TKÜ) provided for in section 110(3) of the TKG. It has just come into effect in Version 4.1, but has as yet no arrangements for the following areas:

Internet access (DSL and cable),
Voice over IP,
Wireless LAN.

It will be necessary in 2005 to include arrangements for these areas as well, enabling the authorised bodies to carry out intercepts.

2. Automated information requests

An equally important contribution to public security is the automated information procedure under which personal data such as name, address and telephone number can be retrieved by the authorities specified in section 112 of the TKG. Technical details of the procedure will be provided by RegTP in a technical directive to be drawn up in 2005.

Posts

I. Definition of universal services in the postal sector

In accordance with section 11 of the Postal Act the 'definition of universal services shall be adapted to technical and social developments in line with demand'. Section 47 of the Postal Act requires RegTP to comment in its Activity Reports on 'whether modification of the determination which postal services are deemed universal services (…) is recommended'. The next Activity Report (2004/2005) will be published in late 2005 and the following one not before the end of 2007. While the law currently obliges DPAG to provide these universal services, this obligation will end on 31 December 2007 once DPAG's exclusive licence expires. From then on, all licensees will be responsible for providing universal services. Account will have to be taken of the new situation in RegTP's Activity Report for 2004/2005; it will be too late in the 2006/2007 Report.

II. Continued development of the legal framework for cooperation among licensees and the effect on competition

Since the Postal Act came into force RegTP has issued approximately 1,700 licences for the conveyance of letter mail. Some 1,000 licensees are currently active in the market. In 2004, seven years after the market was opened, these licensees have gained no more than five percent of the market. Thus there is no fair and effective competition, and this situation is not expected to change in the foreseeable future. As the licensees are for the most part small enterprises, the market is highly fragmented. Supraregional cooperations between licensees aiming to join forces and exploit synergies are few and far between. However, such cooperations could help to prevent market fragmentation and ultimately promote competition. RegTP addresses the situation by illustrating the legal framework for such cooperations before and after the expiry of DPAG's exclusive licence.

III. Ensuring compliance with the section 36 notification requirement

Providers of postal services subject to licence must obtain express authorisation (in other words, a licence) from RegTP. Around 1,700 such licences have been issued by RegTP to date. Notification must be sent to RegTP by providers of postal services not subject to licence (section 36 of the Postal Act). While RegTP has received fewer than 500 such notifications to date, it is estimated that at least 3,500 to 4,000 providers are active in this market. A great many providers have hence failed to comply with this requirement. Frequently unaware of their legal obligations, these providers are enjoying a competitive advantage over those providers who comply with the notification requirement and, if applicable, the requirement to obtain a licence (see above). RegTP should implement measures to minimise the resulting distortion of competition while observing the principle of proportionality.

IV. Determining quality of service in the letter mail service

Until recently RegTP measured end-to-end service quality in the letter mail service using its own test letters (more than 200,000 per annum). Following an objection from the Federal Audit Office this procedure was discontinued at the end of 2004. RegTP remains responsible for determining the quality of service

and will use other sources in future, eg test letters sent by a company independent from DPAG and/or statistical information on letter box clearance times and latest acceptance times in fixed-location facilities such as outlets, agencies etc.

V. Development of employment figures in the letter mail market

RegTP will study the development of employment figures in the market for services subject to licence (conveyance on a profit-oriented basis of letter mail items up to 1,000g). To this end it will request market players to supply information on their current employment figures. The intention is to obtain reliable information on the development of employment figures in this major industry following the coming into force of the Postal Act.

Energy

The amended Energy Industry Act is expected to come into force in summer 2005 at the latest. The Act is to secure fair and effective competition in the supply of gas and electricity as a result of regulation. The functions and powers provided for by the new law – as long as no special arrangements are made – are to be assigned to RegTP as things stand at present. This is a huge new challenge, which will make up the lion's share of RegTP's work.

Extensive preparations in terms of organisation, staff recruitment and energy issues themselves are already required at this stage so that RegTP can hit the ground running when the new legislation is enacted.

RegTP has been provided with some 180 posts, spread across a new specialist department and various decision-making sections. It will have to recruit new staff and unite the recruits with the members of staff who already have experience of telecoms regulation.

According to the legislation as it stands, the published drafts of the ordinances and the first signals from the market, RegTP will be required to prioritise the following:

- Drawing up a list of criteria relating to the unbundling measures to be implemented by the industry so as to secure the statutory unbundling aims and to keep the additional costs for the industry to a minimum.
- Securing a reliable, complete and low-effort flow of information between the industry and RegTP. The same applies with regard to the information market players are to make available to each other for reasons of transparency.
- Promptly securing standardised grid access by putting requirements and agreements in place.
- Promptly implementing the planned comparison procedures, which presuppose that operators have been assigned to structural classes. Another matter to be dealt with as soon as the new law is enacted is a review of the higher transmission and distribution charges, introduced or filed for following publication of the cabinet decision of 28 July 2004. Work has already started on developing an incentive regulation model, yet completion will not be possible in 2005 given the complexity of the task.

Irrespective of the Energy Industry Act's taking effect, a main focus of RegTP's work will continue to be in the international arena. Germany's interests will be looked after in particular as a result of participation in the working groups of the Council of European Energy Regulators (CEER), the European Regulators Group for Electricity and Gas (ERGEG) and in the mini forums.

Glossary

AFuV	Amateur Radio Ordinance *(Amateurfunkverordnung)*
AGB	General terms and conditions (*Allgemeine Geschäftsbedingungen)*
BAnerkV	Functions Assignment and Recognition Ordinance *(Beleihungs- und Anerkennungs-Verordnung)*
BEMFV	Ordinance concerning the Controls for the Limitation of Electromagnetic Fields *(Verordnung über das Nachweisverfahren zur Begrenzung elektromagnetischer Felder)*
BGB	German Civil Code (*Bürgerliches Gesetzbuch*)
BKartA	Federal Cartel Office *(Bundeskartellamt)*
BMWA	Federal Ministry of Economics and Labour *(Bundesministerium für Wirtschaft und Arbeit)*
BOS	Emergency organisations *(Behörden und Organisationen mit Sicherheitsaufgaben)*
BZA	Outbound mail sorting centres *(Briefzentrum Abgang)*
BZE	Inbound mail sorting centres *(Briefzentrum Eingang)*
CAB	Conformity Assessment Bodies *(Konformitätsbewertungsstellen)*
CEN	European Committee for Standardization
CEER	Council of European Energy Regulators *(Vereinigung der europäischen Energieregulatoren)*
CEPT	European Conference of Postal and Telecommunications Administrations
CERP	European Committee for Postal Regulation
COCOM	Communications Committee *(Europäischer Kommunikationsausschuss)*
CPG	Conference Preparatory Group
DFS	German air traffic control *(Deutsche Flugsicherung)*
DMR	Digital mobile radio
DPAG	Deutsche Post AG
DQ	Directory enquiries
DSL	Digital subscriber line
DTAG	Deutsche Telekom AG
DVB-T	Digital video broadcasting – terrestrial
ECC	Electronic Communications Committee

EMVG	Electromagnetic Compatibility Act *(Gesetz über die elektromagnetische Verträglichkeit von Geräten)*
EnWG	Energy Industry Act *(Energiewirtschaftsgesetz)*
ERGEG	European Regulators Group for Electricity and Gas
ETOE	Extra-territorial office of exchange
ETSI	European Telecommunications Standards Institute
EuGH	European Court of Justice (*Europäischer Gerichtshof*)
EVN	Itemised bill *(Einzelverbindungsnachweis)*
FCC	Federal Communications Commission
FM	Frequency management
FreqBZPV	Frequency Band Allocation Ordinance *(Frequenzbereichszuweisungsplanverordnung)*
FreqNPAV	Frequency Usage Plan Ordinance *(Frequenznutzungsplanaufstellungsverordnung)*
FTEG	Radio Equipment and Telecommunications Terminal Equipment Act *(Gesetz über Funkanlagen und Telekommunikationsendeinrichtungen)*
ICAO	International Civil Aviation Organisation
ISO/IEC	International Organization for Standardization
ISP	Internet service provider
ITU	International Telecommunication Union
ITU-R	ITU Radiocommunication Sector
IVPN	International virtual private network
LAN	Local area network
MHP	Multimedia home platform
MRA	Mutual recognition agreement
MWDG	Premium Rate Services Act *(Gesetz gegen den Missbrauch von (0)190er/(0)900er Mehrwertdiensterufnummern)*
NotrufV	Emergency services access ordinance *(Verordnung über Notrufverbindungen)*
NTR	National number (*Nationale Teilnehmerrufnummern*)
OVG	Higher administrative court *(Oberverwaltungsgericht)*
PDLV	Postal Services Ordinance (*Postdienstleistungsverordnung*)
PMD	Radio monitoring and inspection service *(Prüf- und Messdienst)*

PMR	Professional mobile radio
PostG	Postal Act *(Postgesetz)*
PUDLV	Postal Universal Service Ordinance (*Postuniversaldienstleistungsverordnung*)
QoS	Quality of service
RberG	Legal Advice Act *(Rechtsberatungsgesetz)*
RegTP	Regulatory Authority for Telecommunications and Posts (*Regulierungsbehörde für Telekommunikation und Post*)
RRC	Regional Radiocommunication Conference
RTTE	Radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity
SAR	Search and rescue
SDR	Software defined radio
SE	Spectrum engineering
SigG	Electronic Signatures Act *(Signaturgesetz)*
SigV	Electronic Signatures Ordinance *(Signaturverordnung)*
SMP	Significant market power
SPA	Self provided application
SRR	Short range radar
TCB	Telecommunication certification body
T-DAB	Terrestrial digital audio broadcasting
TDSV	Telecommunications Data Protection Ordinance *(Telekommunikations-Datenschutzverordnung)*
TKG	Telecommunications Act *(Telekommunikationsgesetz)*
TKV	Telecommunications Customer Protection Ordinance *(Telekommunikations-Kundenschutzverordnung)*
TR	Technical directive
TSAG	Telecommunication Standardization Advisory Group
UMTS	Universal Mobile Telecommunications System
UWB	Ultra wideband
VATM	Association of the Providers of Telecommunications and Value-Added Services *(Verband der Anbieter von Telekommunikations- und Mehrwertdiensten)*

VG	Administrative court *(Verwaltungsgericht)*
VO Funk	Radio Regulations *(Vollzugsordnung für den Funkdienst)*
VoIP	Voice over Internet protocol
WLAN	Wireless local area network
WRC	World Radiocommunication Conference
ZPO	Code of Civil Procedure (*Zivilprozessordnung*)
ZPOEG	Code of Civil Procedure Introduction Act (*Gesetz betreffend die Einführung der Zivilprozessordnung*)

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Press Office
Tulpenfeld 4, 53113 Bonn
Tel.: +49 (0)228/14-9921
Fax: +49 (0)228/14-8975
www.regtp.de

Responsible within the meaning of press law: Rudolf Boll
Press Office

Edited by: Linda Sydow, RegTP
Ilse Beckmann, RegTP

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