

Annual Report 2001

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Telecommunications and Posts
– RegTP –

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"The situation in the telecoms market is better than the mood would have us believe"

- **Despite consolidation, the number of jobs has again risen**
- **The telecoms market has grown by 15 percent to DM 124 billion**

The situation in the telecoms market today is brighter than the prevailing mood. The telecoms services market has withstood the economic downturn much better than most segments. Revenues in the services market increased 15 percent to DM 124bn, keeping its growth dynamic intact.

A handwritten signature in dark ink, appearing to read 'Matthias Kurth', with a stylized, cursive script.

Matthias Kurth
President
Regulatory Authority
for Telecommunications and Posts

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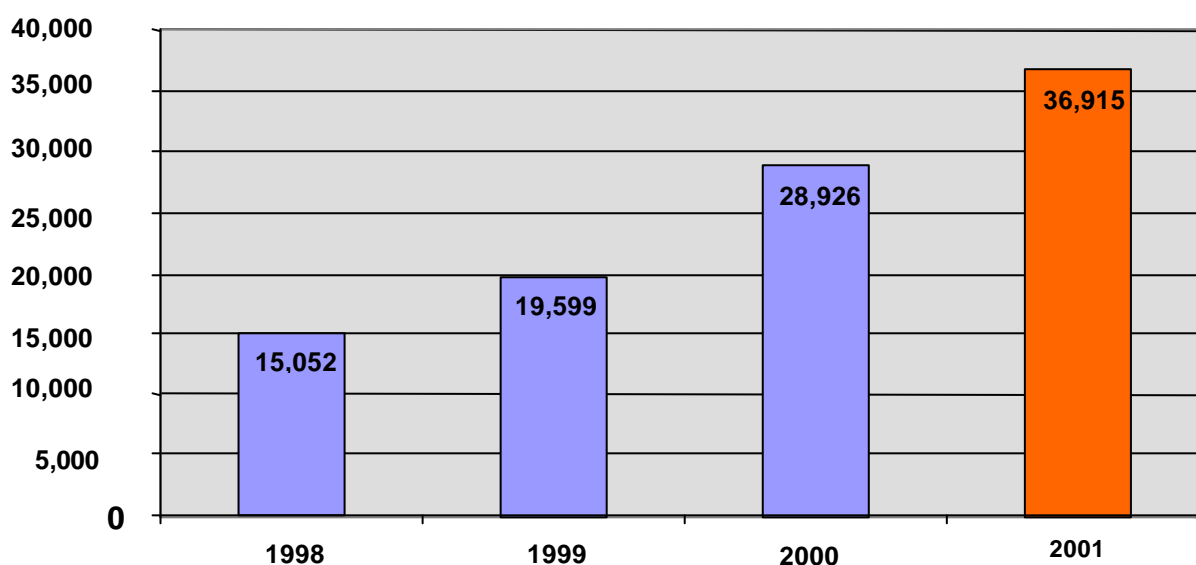
Consumer Advice

Telecoms

Consumer Enquiries

Following liberalisation of the German telecoms and postal markets, RegTP's Consumer Advice service has become the focal point for customers' enquiries since it was set up in 1998. The degree to which it is used reflects the strong growth in the number of telecoms companies and the host of services available. Consumers' enquiries and complaints mirror developments in the German telecoms and postal markets, and relations between service providers and their customers in particular.

The chart below shows a steady annual increase in use of the service:



In 2001 alone, Consumer Advice received a total of 36,915 enquiries and complaints.

Of these,

- 19,474 were made over the phone,
- 8,820 were made over the Internet, and
- 8,621 were received as letters / faxes.

The main issues in 2001 were:

1. Unsolicited direct marketing (especially by fax, touting for customers)	26.0%
2. Bills (difficulty in understanding bills, bills not arriving)	15.8%
3. Prices (for Internet access in particular)	14.5%
4. Contracts	11.2%
5. Numbering (allocating numbers, porting numbers, keeping numbers)	7.6%

There was a considerable increase, particularly in the second half of the year, in the number of complaints from people bothered by unsolicited direct marketing by fax, text messages and email. This is an issue of particular concern to RegTP, since consumers often turn to it, as well as the consumer associations, for help. Within its remit, RegTP advises consumers about the options open to them. It gives information, for instance, on the holders of the relevant number blocks and brings its specialist knowledge to bear in the discussion of further precautions.

The bulk of the complaints from customers not understanding their bills was about charges for calls to 0190 premium rate services. Often, customers only realised the extent to which they had used these services, knowingly or unknowingly, when they saw the bill. Greater use of the Internet has also meant an increase in the number of complaints about overcharging for Internet calls.

Complaints about pricing focused on Internet calls in conjunction with RegTP's ruling on wholesale unmetered access.

Many consumers still mistake RegTP for a services centre for their telecoms suppliers, contacting it with complaints about breaches of contract in the expectation that, as a supervisory body, RegTP will be able to intervene to help.

Consumer Advice handled not only a large number of enquiries about allocating numbers but also queries and complaints about the legal rights of customers wishing to keep their number when switching to another fixed or mobile operator.

The percentage of complaints has increased markedly since the service opened. Thus complaints accounted in 2001 for more than 50 percent of the total contacts (1999: 37 percent).

RegTP's consumer service works together with the consumer associations for the benefit of the consumer in what, to date, has proved to be fruitful cooperation.

Conciliation

Under Section 35 of the Telecommunications Customer Protection Ordinance (TKV), customers claiming that their rights have been infringed may ask RegTP to conciliate in a dispute with their voice telephony or public telecoms network access provider.

Since its establishment, the conciliation service has received some 1,300 requests to resolve disputes out of court. 508 cases were heard in 2001 – an approximate increase of 40 percent over the same period in 2000. RegTP sees this increase as signalling the growing acceptance and use by consumers of this route to settle disputes with their telecoms suppliers out of court.

Altogether, a number of problems were cleared up and disputes resolved. And most of the proposals made by the conciliation service were accepted by the parties concerned.

The main causes of dispute were

- understanding the charges on telephone bills,
- the quality of telecoms and customer services, and
- contractual matters.

Favourable Status List

In order to clarify Section 14 of the TKV, RegTP specified the parameters for the standard itemised bill. To bind as many providers as possible to this interpretation, RegTP has introduced a favourable status list. Every provider committing to comply with the parameters can have their name included on the list. The list is updated twice a year and is published in RegTP's Official Gazette and posted on its website. Telecoms providers are generally keen to be included. Yet there are also some who have not applied or whose request has been turned down because they have failed to meet the requirements.

After a difficult start-up phase in 1998 and 1999 the standard itemised bill – which costs the customer nothing – is proving to be a major factor in enabling customers to understand their bills better and to resolve disputes objectively. The favourable status list started off with 17 companies and has 47 today.

Postal Sector

Public Petitions and Consumer Protection

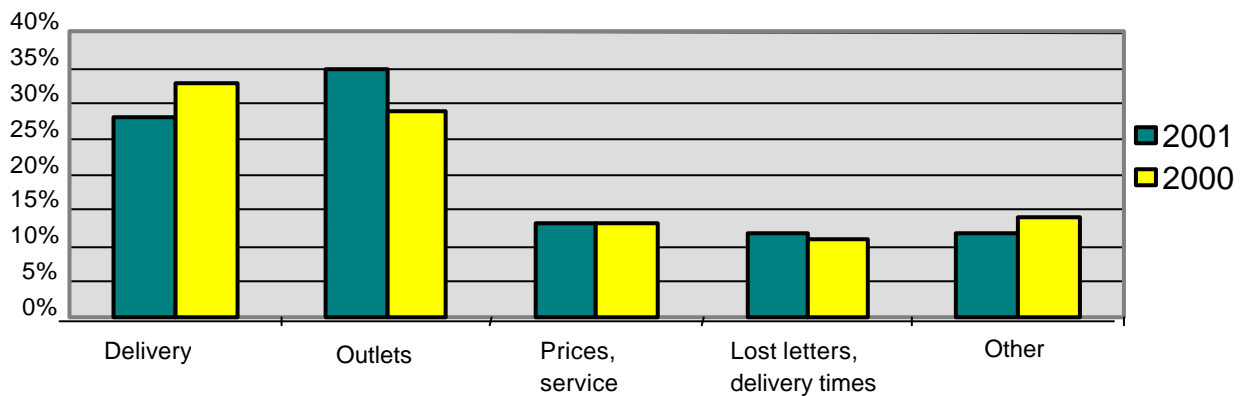
By far the largest number of enquiries about postal matters were made to RegTP over the telephone. Altogether, some 1,700 calls were received in 2001. About half of these requested general information, and about 30 percent information on the letter and parcel markets. Under Section 5 of the Postal Universal Service Ordinance (PUDLV) every individual is entitled to submit written proposals to RegTP for measures to ensure prescribed quality standards. Some of the submissions did not – strictly speaking – comply with the Section 5 criteria, according to which the public petition can only propose measures to guarantee the quality standards. But this is often a question of definition. The following will therefore deal with consumers' submissions as a whole.

RegTP received a total of 510 petitions and similar proposals in the year under review. These can be broken down as follows:

Petitions on postal matters

Delivery	Outlets	Prices, service	Lost letters, delivery times	Other	Total
142	177	65	64	62	510

Petitions in 2000 and 2001



Following up information from consumers, RegTP was forced to conclude on several occasions last year that fixed facility coverage fell short of the statutory requirements. In six cases, RegTP was able to intervene successfully to have a fixed facility reinstated. In another case, closure was averted and in four cases still running, Deutsche Post AG (DPAG) has given a written assurance that an outlet will be provided. More and more of the submissions are now concerned with liability issues. Until the Postal Services Ordinance was enacted on 25 August 2001, RegTP could only refer consumers to carriers' standard terms and conditions, propose that they seek agreement with the carrier, or recommend that they contact a consumer association or the courts.

Now that the Ordinance is in force, RegTP has a further consumer protection function. The Ordinance enables RegTP to intervene as a conciliator – in questions of liability, too – provided the consumer was not able to resolve the dispute directly with the provider beforehand. Soon after enactment, RegTP received the first requests for conciliation. Its aim, in dealing with these to the spirit as well as the letter of the Ordinance, is to bring about a satisfactory arrangement for both parties promptly. RegTP is considering whether or not it is necessary to draw up separate procedural rules, based on the experience it has gained.

Universal Services

The Postal Universal Service Ordinance (PUDLV) is the criterion by which RegTP establishes whether or not the postal services designated as universal services are being provided in line with the minimum quality standards and appropriately and adequately. The PUDLV, as amended on 15 December 1999, does not commit any company – not DPAG, either – to provide the services defined therein.

Fixed Facilities

Under the PUDLV there must be a minimum of 12,000 fixed-location facilities across the country to provide letter and parcel delivery services. At least 5,000 of these 12,000 facilities must be operated by DPAG's own staff.

The fixed facilities in Germany for the last five years are listed below:

	Total	Operated by own staff
12 / 1997	15,331	10,095
12 / 1998	14,482	7,946
12 / 1999	13,948	5,956
12 / 2000	13,663	5,590
12 / 2001	12,818	5,331

Source: Deutsche Post AG

Fixed Facility Checks

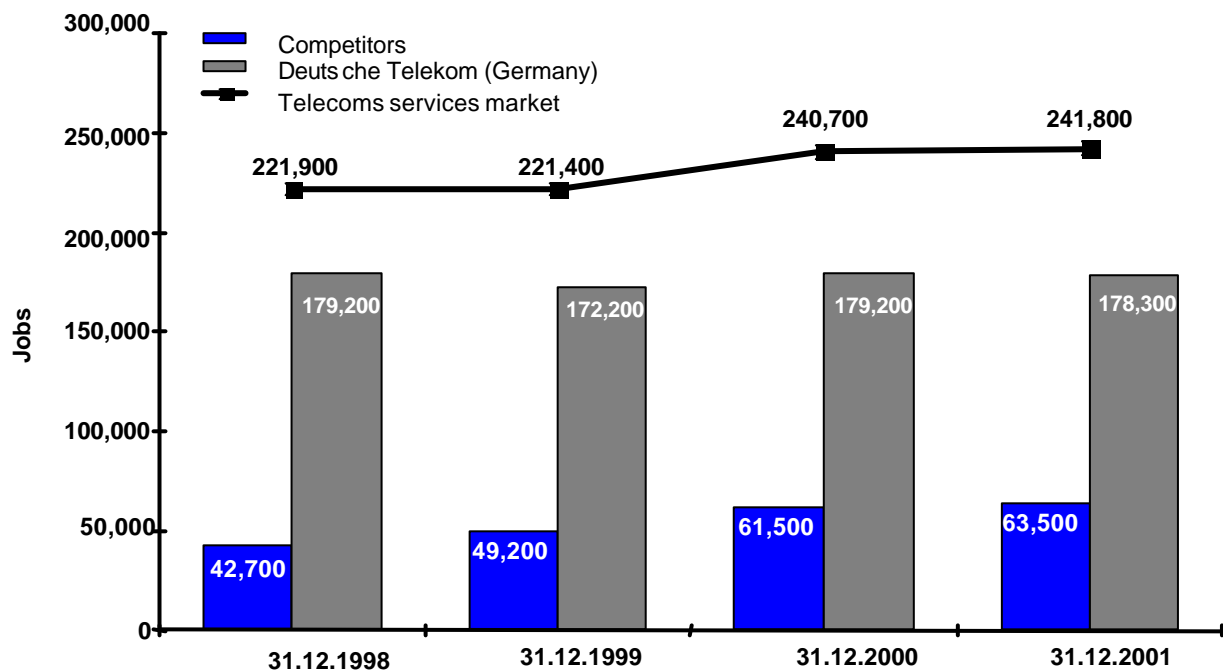
RegTP began in 2001 to check compliance with the criteria of the PUDLV not just in response to public petitions but systematically by virtue of its office. To do so, it devised a system of spot checks. The trials have now been completed and the system will become operational in 2002.

Employment Trends

Jobs in the Telecoms Market

The number of people working in the telecoms services market rose to **241,800** at the end of 2001. This was still a positive growth rate, even if some way short of the previous year's rate (**0.46 percent** growth in 2001 compared with **8.7 percent** in 2000).

Jobs in the Telecoms Services Market



The competitors experienced similar growth levels: **15 percent** in 1999, **25 percent** in 2000 and **3.25 percent** in 2001.

The mobile operators had a total of **1,100** staff (four percent more) on their payrolls at the end of 2001. However, this was well below the growth rates of the two previous years (22 percent in 2000 and 17 percent in 1999). Staff numbers in the fixed network business – some **30,000** – remained around the previous year's level, compared with **23,400** on 31 December 1999 and **18,800** on 31 December 1998.

Deutsche Telekom AG (DTAG) had a workforce of some **178,300** on 31 December 2001 at its parent and German subsidiaries, a reduction of 900 over the previous year.

Jobs in the Postal Market

Number of persons employed in 2000 in the licensed area (annual average)
(Final figures for 2001 not available at the time of publication)

	DPAG	Licence holders	Other licence holders ^{*)}
Full time (persons working 35 or more hours a week)	107,000	4,535	10
Part time (persons for whom the categories <i>Full time</i> and <i>In insignificant employment</i> do not apply)	58,500	5,005	10
In insignificant employment (persons employed under the DM 630 rule)	1,273	11,015	16,500
In insignificant employment and liable to social insurance contributions	175	10,765	5,500

*) Holders of a so-called old-type licence issued before the Postal Act, currently working solely for DPAG

The table shows that almost 99 percent of those employed by licence holders issued a licence as from 1998 under the Postal Act (PostG) are liable to social insurance contributions. Companies operating under an old-type licence (licence granted before the Postal Act came into force and valid until the end of 2007, for the conveyance of large mailings not exceeding 100g per piece in weight) are not required to submit figures.

Persons employed by Licence Holders by Federal State:

	Full time	Part time	In insignificant employment
Baden-Württemberg	142	375	300*)
Bavaria	255	29	99
Berlin	311	96	33
Brandenburg	104	60	411
Bremen	0	3	6
Hamburg	1,765	986	251
Hesse	292	274	137
Mecklenburg-Western Pomerania	137	75	1,743
Lower Saxony	521	256	757
North-Rhine/Westphalia	437	2,258	4,178
Rhineland-Palatinate	38	17	74
Saarland	3	1	32
Saxony	235	399	2,190
Saxony-Anhalt	163	94	564
Schleswig-Holstein	19	13	78
Thuringia	113	69	162

*) Not including around 16,500 persons employed by the holder of an old-type licence working solely for DPAG.

At the end of 2000 the licence holders provided 20,000 new – not transferred from DPAG – jobs. These jobs would not exist, were it not for the licence holders' activities. The majority are not, as might be expected, in city regions but in structurally weaker areas (see chart on previous page).

DPAG workforce (letter market):

	1997	1998	1999	2000
Total*)	153,467	147,043	142,332	140,613

*) Staff at year's end, rounded up to full-time staff

Source: DPAG (incomplete sales prospectus, Annual Report 2000)

Thus between late 1997 and late 2000, DPAG has shed the equivalent of some 12,850 full time jobs (– 8.4 percent), not as a result of falling revenues or sales in the letter market, since it has recorded a steady increase in both since the beginning of 1998 (around 9 percent and 11 percent respectively).

Telecoms Market Watch

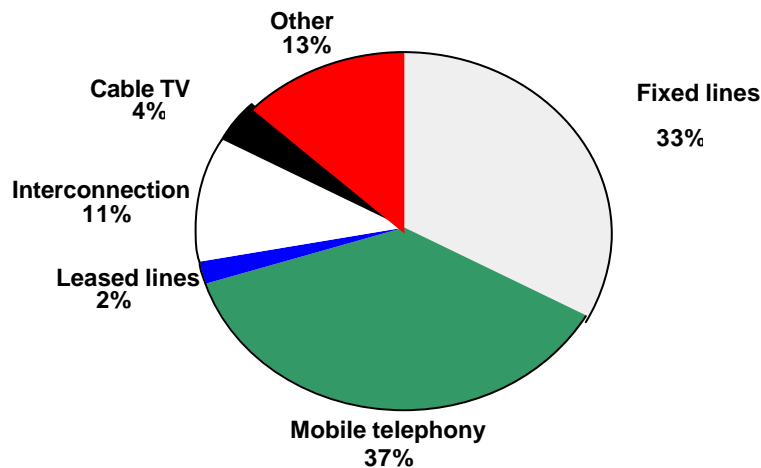
Growth in the Telecoms Services¹ Market

The German telecoms market has expanded steadily since full liberalisation. Growth continued in 2001 in call volumes, in mobile ownership, fixed lines and Internet access, accompanied by a sharp fall in the price of Internet access, in particular. Prices for fixed line and mobile telephony likewise dropped.

In its Activity Report for 2000/2001, RegTP forecast telecoms service revenues of **DM 124 billion** for 2001, following the **DM 108 billion** of the previous year. This means growth of 15 percent. Of the provisional market value figure of DM 124bn, the competitors accounted for over **40 percent**. This share is based on preliminary figures from companies. Breakdown into the separate segments will only be possible however when the final figures are available, as some degree of shift may have taken place.

¹ The term telecoms services covers voice telephone service (connection charges, local/*City* and long distance calls), fixed to mobile calls, international calls originating in fixed networks, fixed calls to online services, ie Internet services (access charges), and other calls originating from fixed lines, eg calls to information services and premium rate services. It does not cover services for closed user groups.

Spread of Telecoms Service Revenues in 2001 DM 124bn*)



*) Provisional figures

By the end of 2001, **431** companies had an unrestricted facilities and/or voice telephony licence. Altogether, the number of licence holders increased further in 2001.

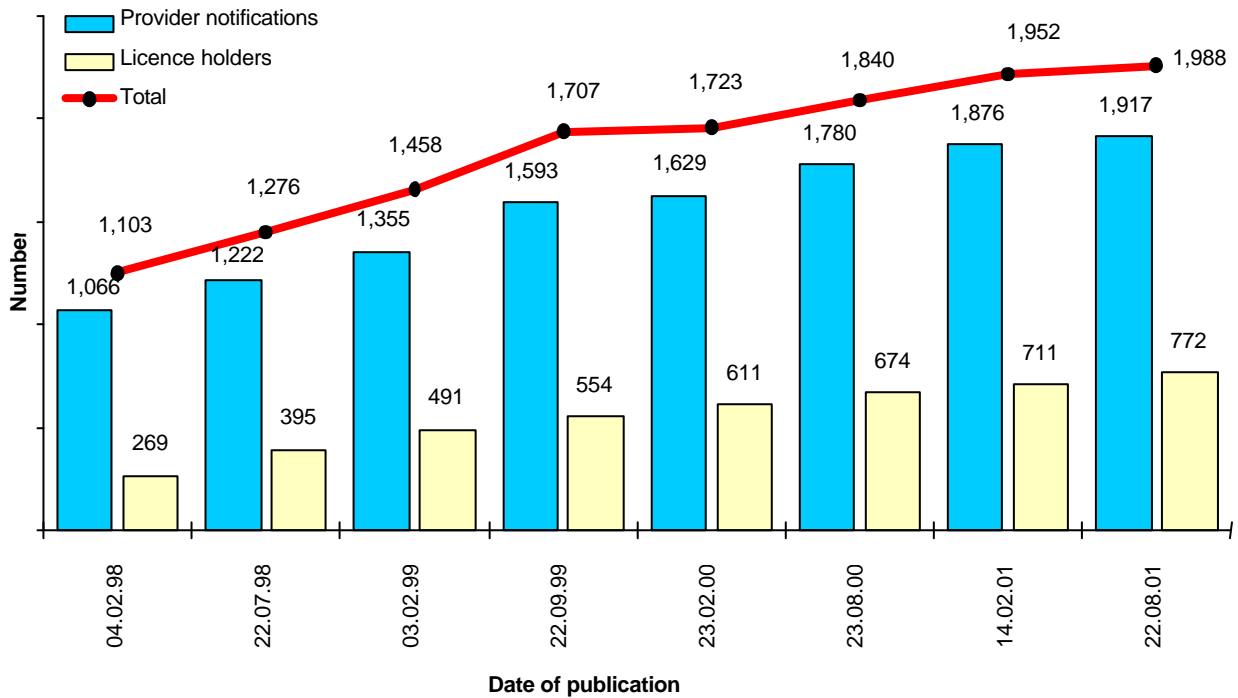
More than **240** companies offered voice telephone service at the end of 2001, a good **90** of whom provided call by call, preselection and direct access over their own long distance or access networks. The other providers were pure resellers. Resellers buy airtime from the network operators and sell and bill these call minutes under their own name. Thus tremendous diversity has been created in the voice telephone and value added markets.

Customers now often make their calls via more than one operator's network, thanks to the interconnection agreements in place. At year's end, **104** competing operators had signed agreements to interconnect their network to DTAG's. They also cooperate between and among one another, in order to lessen their dependence on DTAG.

Trends in Service Offerings

The intensity of competition in the German telecoms market was evidenced by the consistently high number of providers. More than **2,000** had sent notification of operation to RegTP by the end of 2001. At the end of February 2002 RegTP will post a new listing on its website, showing those registered at 31 December 2001.

Growth in the Number of Telecoms Service Providers

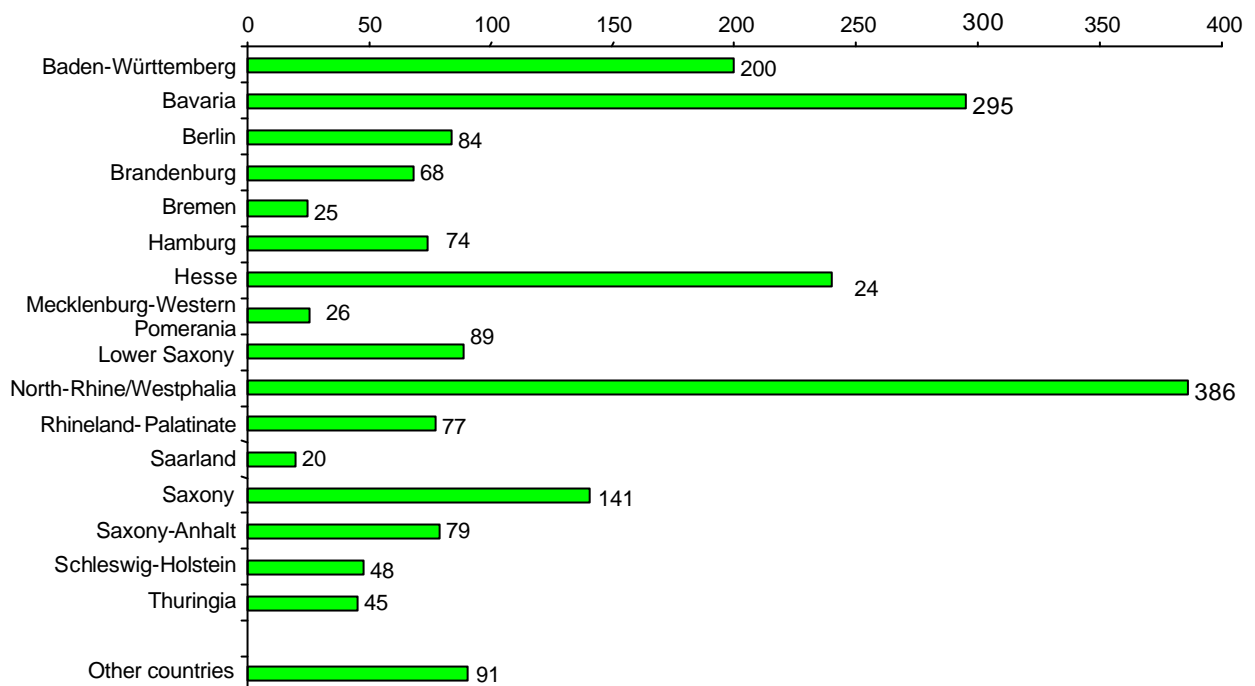
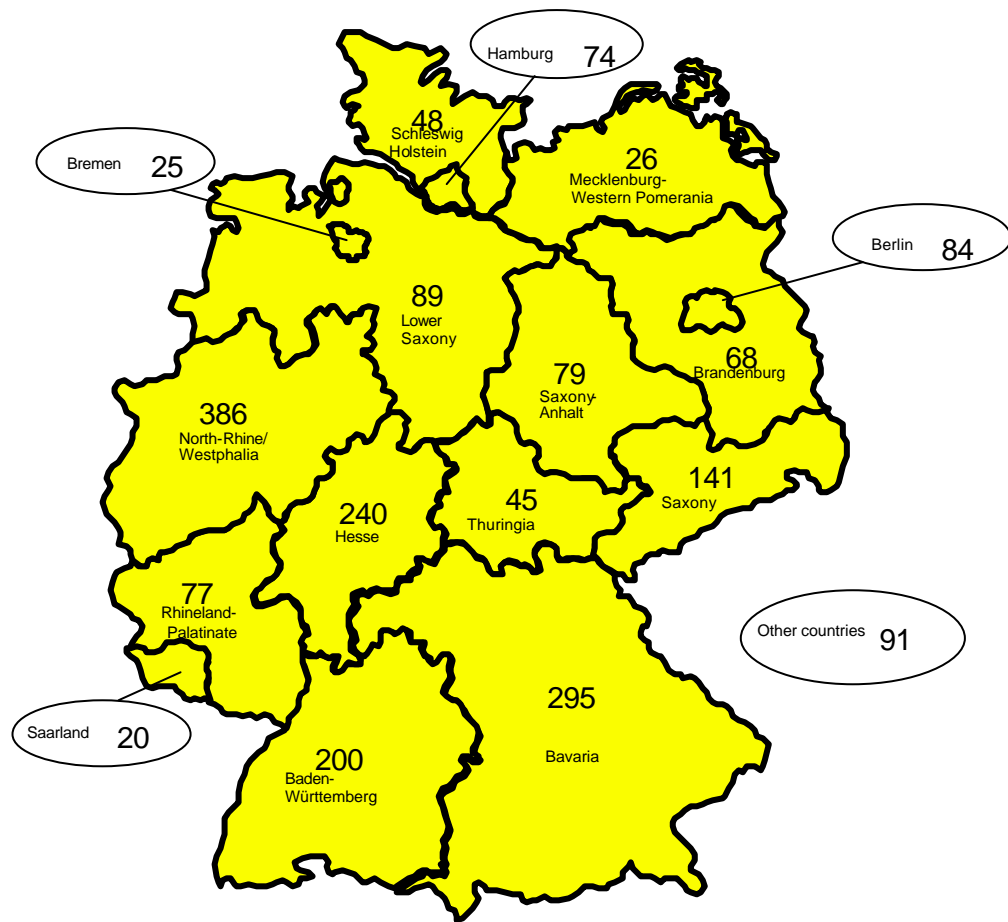


The total number of licence holders in the chart are holders of licences for Classes 1 to 4. Holders of more than one licence are counted once only.

Section 4 of the TKG requires anyone providing a telecoms service to notify RegTP. Most of the new providers registered offer voice telephony and Internet (access) services.

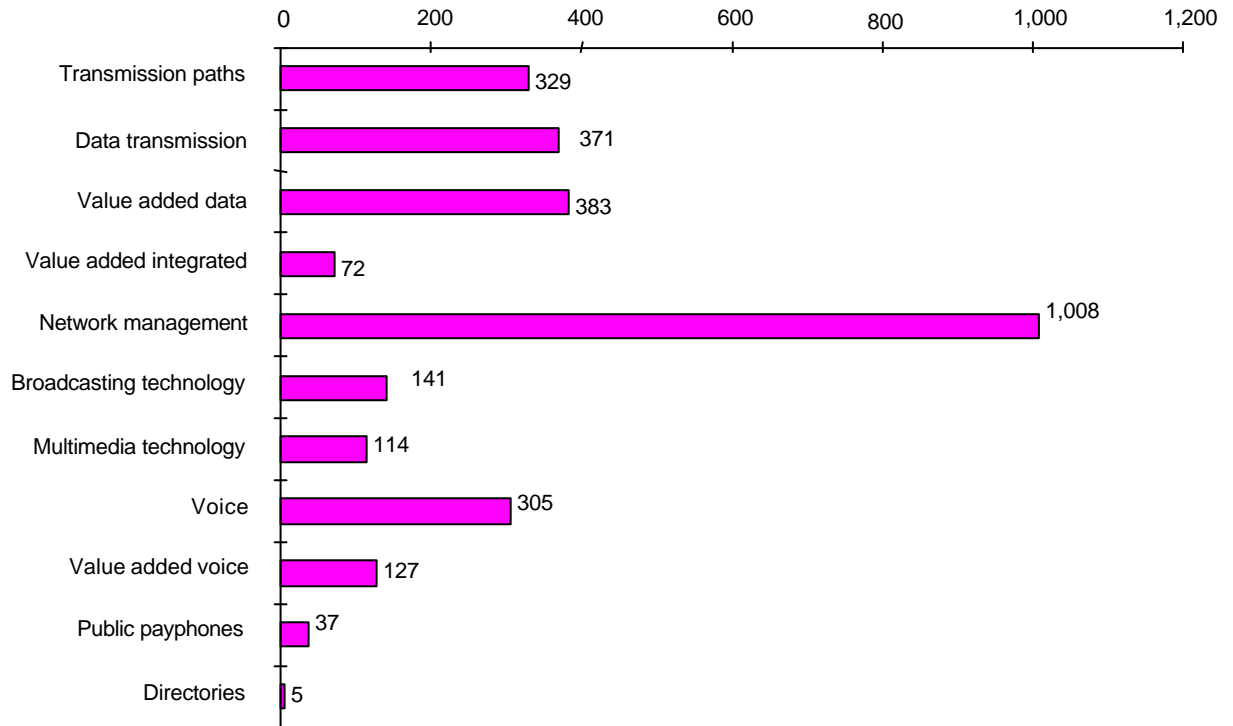
Lists of providers and licence holders are available on RegTP's website at www.regtp.de ("Telecoms Regulation" ⇒ "Telecoms Service Providers").

Regional Breakdown of Telecoms Service Providers

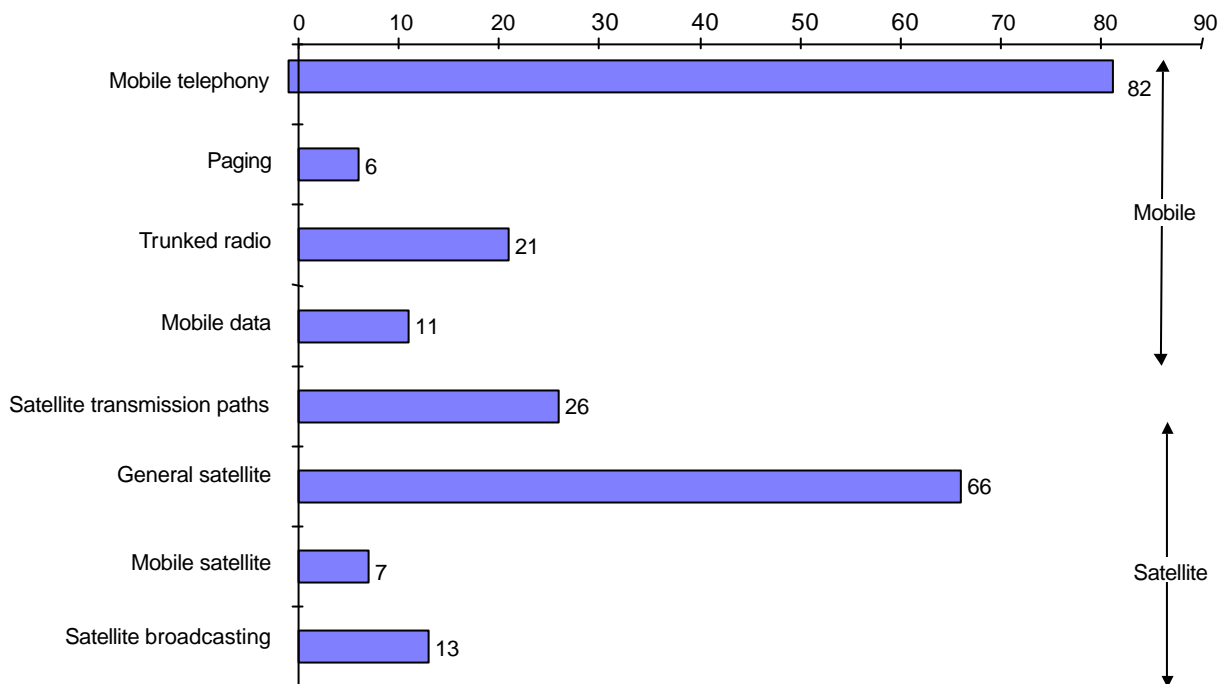


Network management services – the majority being Internet access services offered by Internet Service Providers, or ISPs, – by far outweigh the other services.

Fixed Telecoms Services



Mobile and Satellite Telecoms Services



Growth of Competition in the Local Access Market

Telephone Channels/Fixed Lines

At the end of 2001 the number of telephone channels² in Germany totalled some **52.3 million**. This figure comprises **30.6 million** analog lines³, public telephones included, **9 million** ISDN basic rate lines⁴ and **121,000** primary rate ISDN lines⁵.

Telephone Lines Deutsche Telekom AG and Competitors

	1998	1999	2000	2001
Competitors				
Total (million)	0.16	0.40	0.86	1.58
Analog	15%	21%	17%	14%
ISDN	85%	79%	83%	86%
Number of providers	21	40	55	61
DTAG				
Total (million)	46.37	47.81	49.36	50.70
Analog	78%	72%	65%	60%
ISDN	22%	28%	35%	40%
Total				
Total (million)	46.53	48.21	50.22	52.28
Competitors	0.3%	0.8%	1.7%	3.0%
DTAG	99.7%	99.2%	98.3%	97.0%

Alternative operators increased their number of telephone channels to a total of **1.58m** in the year under review. This represents a share of **three percent**. They accounted for **0.7 percent** of analog lines, for **five percent** of basic rate ISDN lines and for **12.5 percent** of ISDN primary rate lines.

The spread of mobile phones has led to fewer coin-operated payphones and cardphones as a result of falling demand; at the end of 2001 there were **112,000** such facilities, the competitors' share of which was **2.8 percent**.

Besides DTAG, more than **60** licence holders offered analog and ISDN lines⁶ on the basis of local loop access agreements with DTAG, or their own facilities. Hence there was a choice of provider for one third of the population at year's end.

² The standard voice channel, ie the equivalent of a 64 kbit/s channel, is a suitable measure of size, enabling the different types of line such as analog, basic rate ISDN and primary rate ISDN to be subsumed under one heading. The line is not understood in terms of telephone number but in terms of capacity. Public telephones are included in the total. Both the competitors' and DTAG's figures include a small proportion for their own requirements.

³ Traditional telephone line (voice channel with 3.1 kHz bandwidth)

⁴ Basic rate ISDN (Integrated Services Digital Network): 2 independent voice channels, each operating at 64 kbit/s

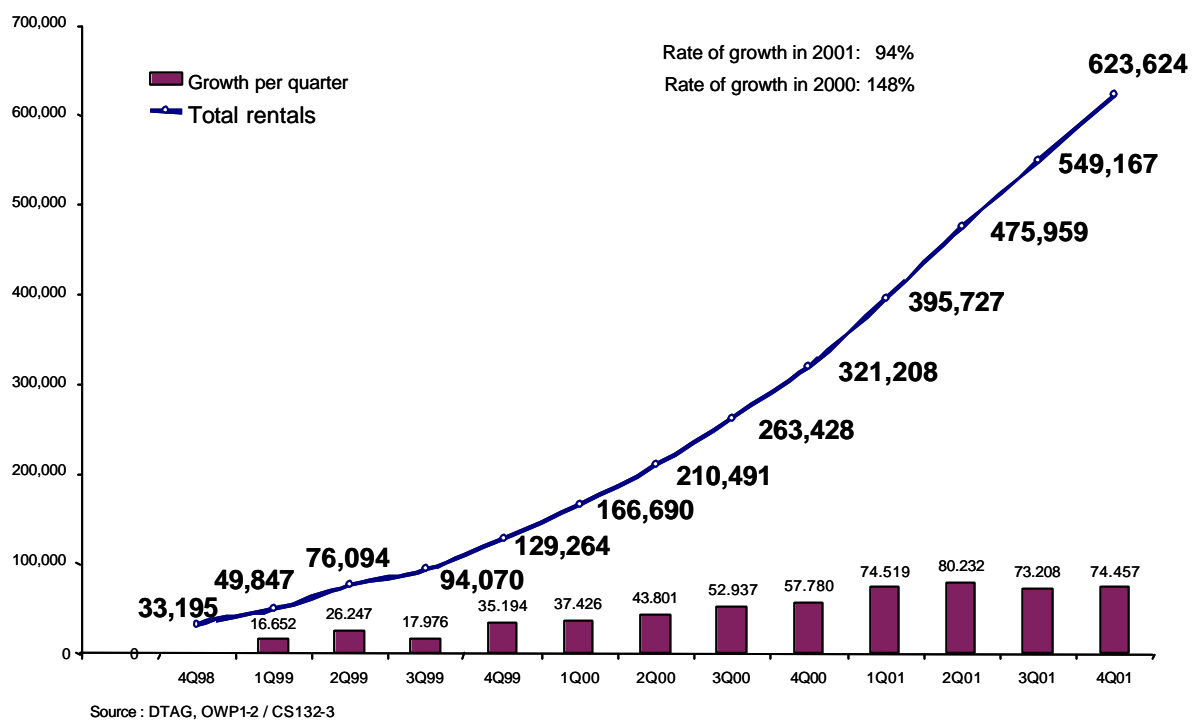
⁵ Primary rate ISDN: 30 independent voice channels, each operating at 64 kbit/s

⁶ In some cases the service is offered subject to minimum revenues

Access to DTAG's Loops

To access the customer, the competitors mainly used DTAG's loops; to a lesser extent they used their own lines, or radio links. At the end of 2001, **87** companies had contractual arrangements with DTAG on local loop rental. Generally, the loops were the copper pair, but occasionally fibre loops. **80 percent** of the lines competitors offered were based on rented DTAG loops. At year's end, a total of **623,624** such rentals had been agreed. The precondition for this is colocation, shared use of the technical rooms and access to the main distribution frames in DTAG's exchanges.

Growth in DTAG's Local Loop Rentals



To date, the competitors have requested colocation facilities in one third of DTAG's access areas. These are the access areas in the larger towns and cities where customer density is high and the heavy users are to be found. By the end of 2001, more than **2,500** of DTAG's **7,900** exchange areas had colocation facilities in place.

Broadband Internet Access

Broadband Internet access at speeds of 124 kbit/s and over are available over digital subscriber lines (DSL), cable TV, powerline communications and satellite. More than **2.1 million** broadband Internet connections were operational in Germany at year's end. **Two million** of these were DTAG's T-DSL connections, some **70,000** the ADSL/SDSL lines of alternative fixed network operators, around **30,000** bidirectional cable connections, around **2,000** powerline communications and an unknown number were satellite connections. DTAG thus had **95 percent** of the broadband market, as opposed to the DSL competitors' **three percent** and the cable operators' **one percent**.

DSL

There are currently **43** xDSL⁷ providers (not including resellers). Of these, **35** (DTAG included) provide broadband Internet access for business and home use via ADSL and SDSL. Of these **35** ADSL/SDSL providers, **26** operate in individual regions only, whereas **nine** provide service in the whole of Germany. **23** offer ADSL and **25** offer SDSL. Additionally, there are over **100** ADSL/SDSL resellers who sell the operators' lines either across the country or in selected cities, mostly in conjunction with Internet services.

At year's end, DTAG operated a total of **2 million** T-DSL (ADSL) lines. Between them, its **34** ADSL/SDSL rivals provided around **70,000** ADSL/SDSL connections. In terms of the country as a whole, the competitors thus achieved a share of **three percent**, comparable to the competitors' proportion of narrow band fixed lines. Their share of the market might show regional variations, and might also be higher locally, however. Moreover, the competitors generally held much more of the market for high speed SDSL connections, generally favoured by businesses.⁸

HDSL connections are offered at present by **13** carriers operating mostly on a regional basis. These connections are used predominantly for data transmission/fixed connections.

Cable Networks

The cable TV market is presently undergoing a shake-out. DTAG's former regional companies in North-Rhine/Westphalia and Baden-Württemberg have been sold to *ish* (Kabel Nordrhein-Westfalen GmbH & Co. KG), Callahan, and DTAG's former company in the state of Hesse to *iesy* (eKabel – Kabel Hessen GmbH & Co. KG). DTAG continues to hold minority stakes. The retrofit being undertaken by the new owners and other cable operators is accelerating the offer of high speed Internet access via this medium. Already, more than **20** cable operators in over **30** towns and cities are offering high speed Internet access via upgraded cable networks. Currently, some **750,000** households are potentially able to use the service, and around **30,000** households actually did so at the end of 2001.

⁷ DSL (Digital Subscriber Line) is a technology providing high bandwidth information over the ordinary copper telephone line. xDSL is the generic term, and ADSL, SDSL, HDSL, etc. are variants of DSL. ADSL (Asymmetric DSL) provides higher downstream than upstream speeds. SDSL (Symmetric DSL) provides the same speed in both directions. HDSL stands for High Data Rate DSL.

⁸ DTAG only began commercial introduction of SDSL at the end of last year.

Powerline Communications

Three companies currently offer Internet access via powerline communications in **four** cities (one pilot project is still underway). At the end of 2001 more than **2,000** households had broadband Internet access over powerlines.

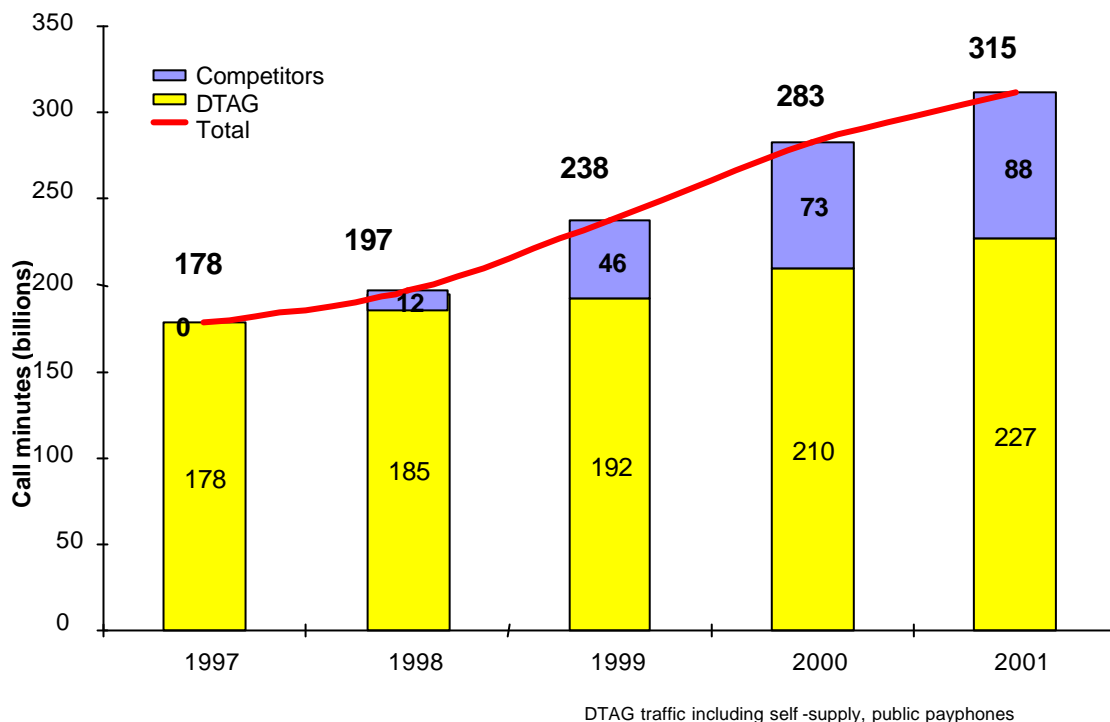
Satellite-Delivered Internet Access

The ASTRA and EUTELSAT satellite systems deliver two kinds of broadband Internet access. One, for business users, is a two-way link that uses the satellite for both the upstream and the downstream data flow. The second variant is a service for home users. The satellite is used for the uplink, while the return channel to the Internet is realised over the telephone line. DTAG is planning to introduce a satellite-T-DSL service in spring 2002 for customers who, for technical reasons, do not have T-DSL access over the fixed network. No figures on the number of satellite-based Internet users are currently available; figures are likely to be low, however.

Growth in Traffic Volume

The 2001 volume of traffic⁹ in the fixed network totalled **315 billion** minutes, an increase of **77 percent** over 1997.

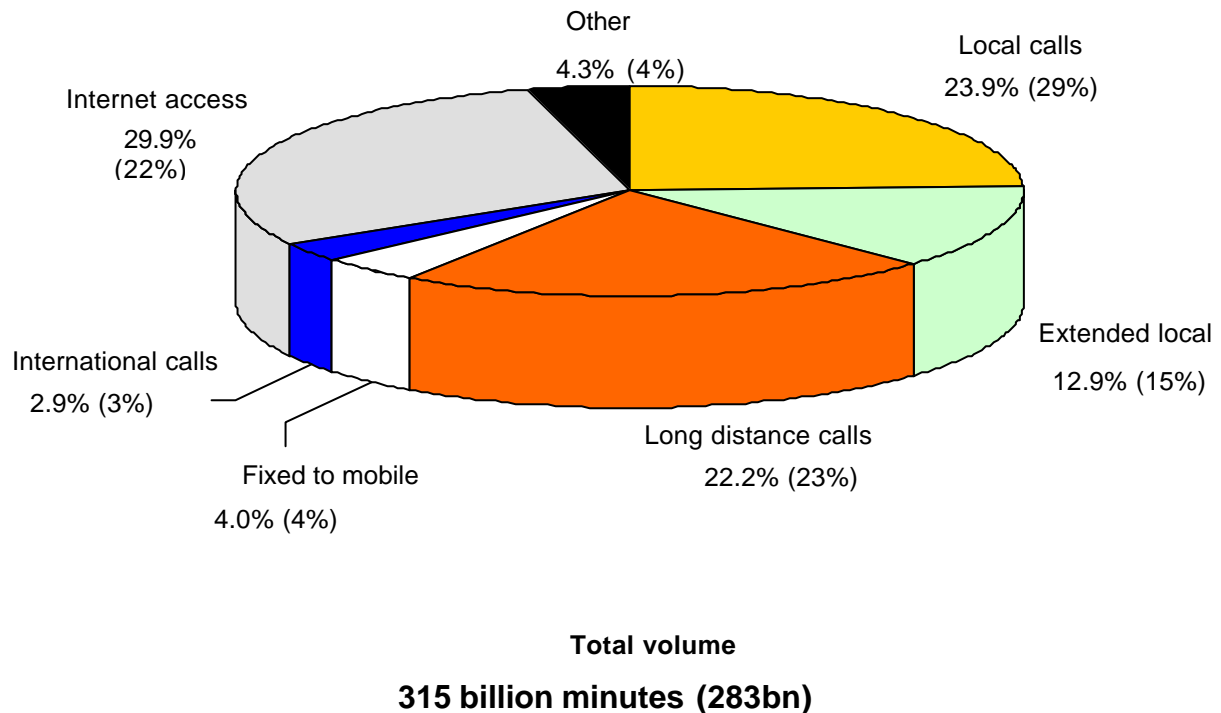
Call Minutes in the Fixed Network (1997 – 2001)



⁹ DTAG's data contains a small proportion for self-supply.

The highest growth was recorded by dial-up Internet traffic, accounting for just under **30 percent** of the total volume. Yet it should be pointed out that a significant volume of Internet traffic now runs over DSL connections, and this is not recorded statistically under dial-up traffic from the fixed network. Mobile continued to displace local and extended local traffic,¹⁰ whose shares fell accordingly.

Structure of Fixed Line Traffic in 2001 (2000)



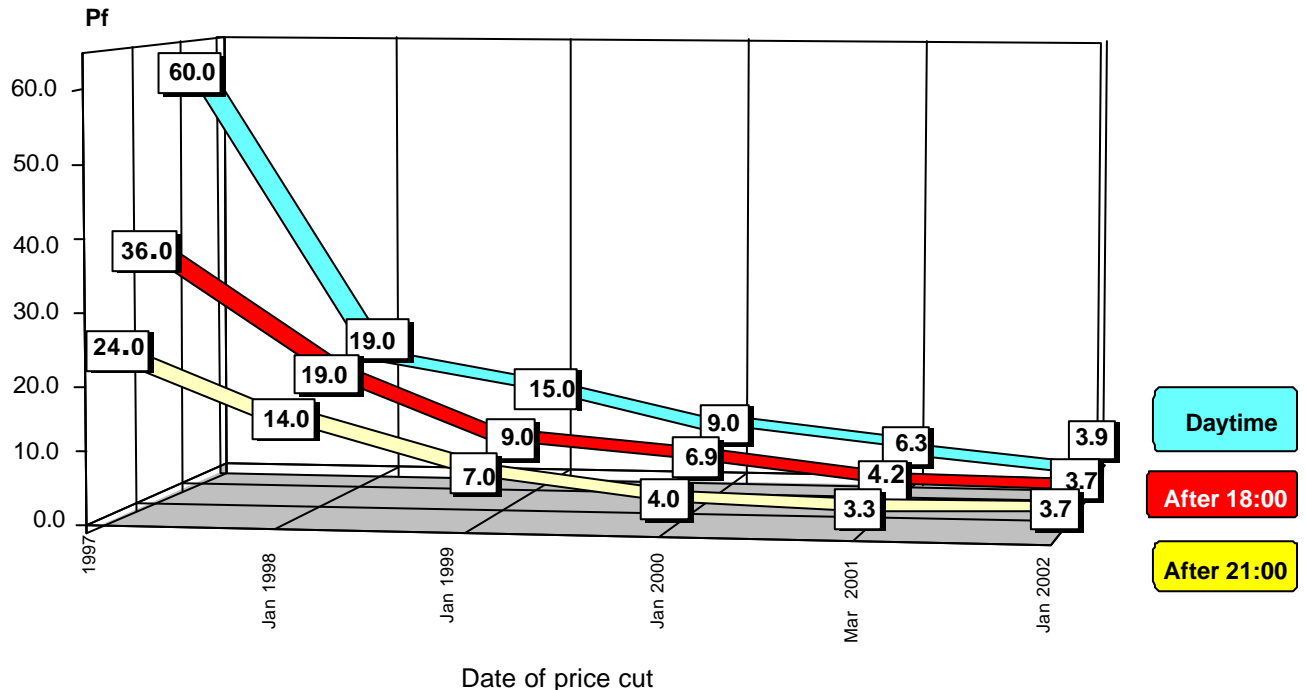
Price Trends

Since the voice telephony market was fully deregulated on 1 January 1998 there has been a marked fall in the price of long distance calls as a result of competition. Prices for national weekday calls have fallen by as much as **90 percent**, depending on the time of day. The chart overleaf illustrates price trends for indirect access calls delivered by the cheapest provider.

¹⁰ The difference between local and extended local traffic is as follows: local traffic is traffic to all destinations not requiring a prefix "0". Extended local traffic is traffic to adjacent local networks or to local networks within a 20-km radius or to destinations possibly within a larger radius but priced at the same levels as local traffic.

Minimum Prices for Fixed National Calls using Call by Call Selection

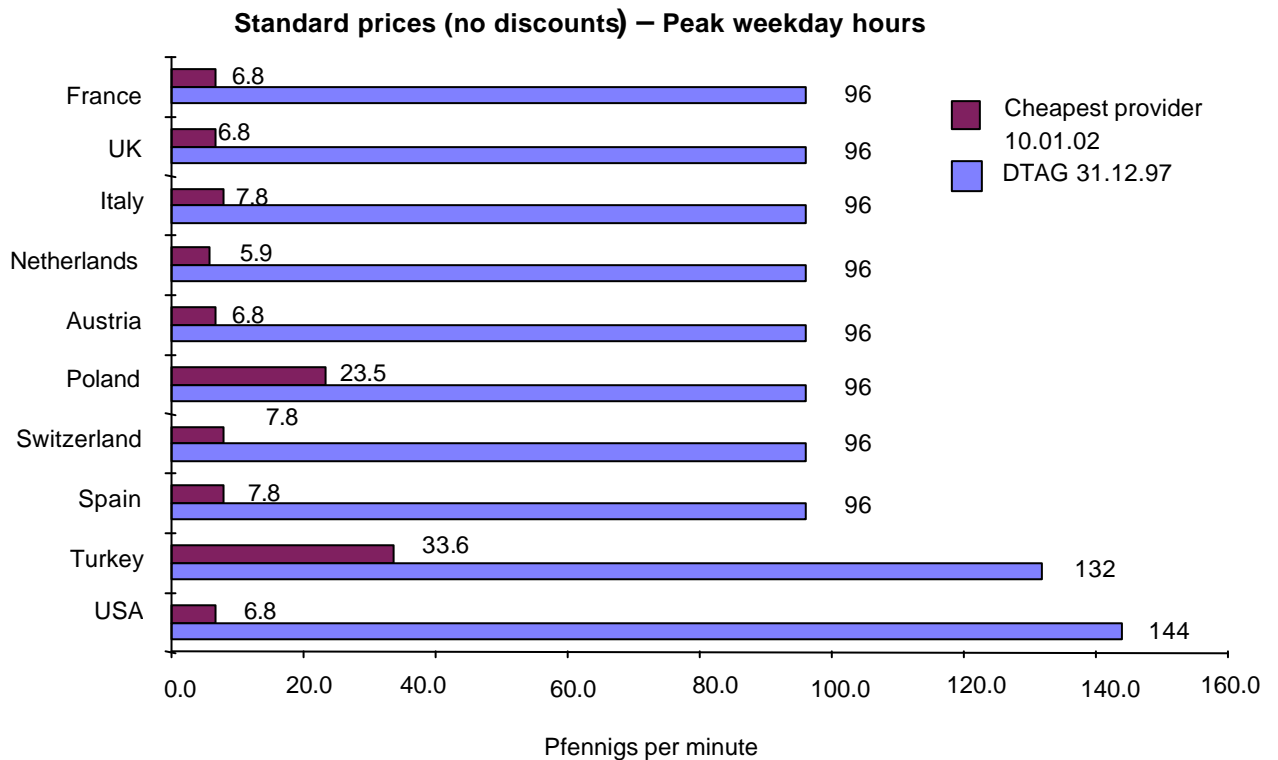
Standard prices (no discounts)
Prices in pfennigs per minute on weekdays



Competition has also brought the consumer great savings in respect of international calls. Since liberalisation in January 1998, prices for calls during peak periods to the **ten** major destination countries have fallen by as much as **95 percent**, and are continuing to fall. In the previous year (4 January 2001 to 10 January 2002) prices were cut again by up to **26 percent**.

The fall in prices is also confirmed by the Federal Statistical Office's retail price index (RPI). However, it includes figures from a sample of providers only. Accordingly, prices for fixed-line telephone services, as an annual average, were **0.6 percent** lower than in 2000. International calls were **6.7 percent** cheaper, national calls **1.3 percent** and local calls **0.1 percent** cheaper than the annual average for 2000. Connection charges and rentals remained unchanged at the previous year's levels.

Price of International Calls to 10 Major Destinations (as of 10 January 2002)

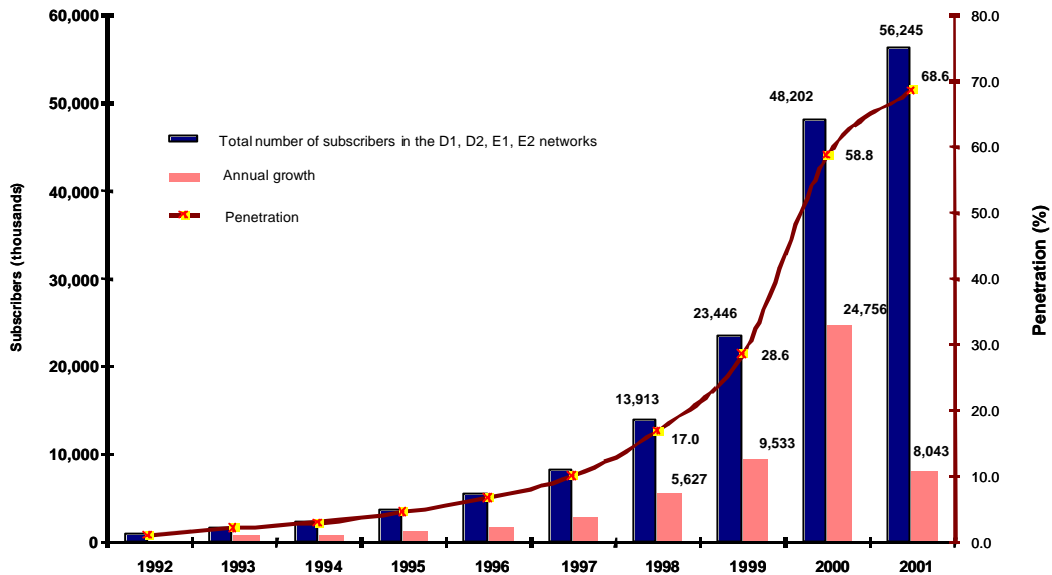


Mobile Market

Subscribers and Penetration

The German mobile networks (D1, D2, E1, E2) had recorded **56.3 million** users by year's end. This amounts to a penetration rate of **68.6 percent** and annual growth of around **8 million** users. This is likely to mean saturation point, however.

Mobile Subscribers and Penetration



The network operators' amended statistics were the main contributory factor to the flatter rates of growth. In 2001, operators began to differentiate between active and inactive users. Thus many prepaid users were identified as customers who had not generated any revenues for long periods, and so were removed from the statistics in order that a more realistic picture could be obtained. Another reason for the more moderate growth is the lower subsidies from the operators for prepaid customers. Nevertheless, at the end of 2001 Germany still recorded the highest number of customers in the mobile market in absolute terms in a comparison with other western European countries, followed by Italy, the UK and France. And in terms of penetration rate, Germany is catching up with the leading western European countries (Italy, Iceland, Austria, Norway and Sweden).

Revenues

Operators and service providers again grew their revenues and traffic volumes in 2001. The rates of growth, however, are lower than the previous year's. The Federal Statistical Office reported a further decrease in 2001 in the RPI for mobile telephony. In relation to the year 2000 (year's end), prices had fallen by **nine percent**.

The prepaid products that were so successful in 2000 featured less prominently in 2001. Ready for the introduction of UMTS, companies changed their focus from quantity to quality. Their chief concern was no longer to win customers at any price, to record large user numbers, but to obtain a solid customer base that would provide healthily growing revenues every month. This shift in focus is due not least to the investment in the UMTS licences and buildout of the UMTS networks. For 2001, the **six** UMTS licence holders are likely to have invested between **four** and **six million deutschmarks** already.

Internet/Online Market

2001 also saw a clear increase in the number of Internet users in Germany. RegTP estimates that by year's end, more than **30 million** Germans over 14 years of age had accessed the Internet in various ways, for instance at work, at home, at friends' or in Internet cafés. This represents over **47 percent** of this demographic group. It is likely that more than half the population over fourteen will be using the Internet by spring 2002.

As regards purely home use, the STERN *MarkenProfile 9* study *Online & E-Business 2001* established that **31 percent** of those aged between 14 and 64 years used the Internet at home. These are statistics for autumn 2001.

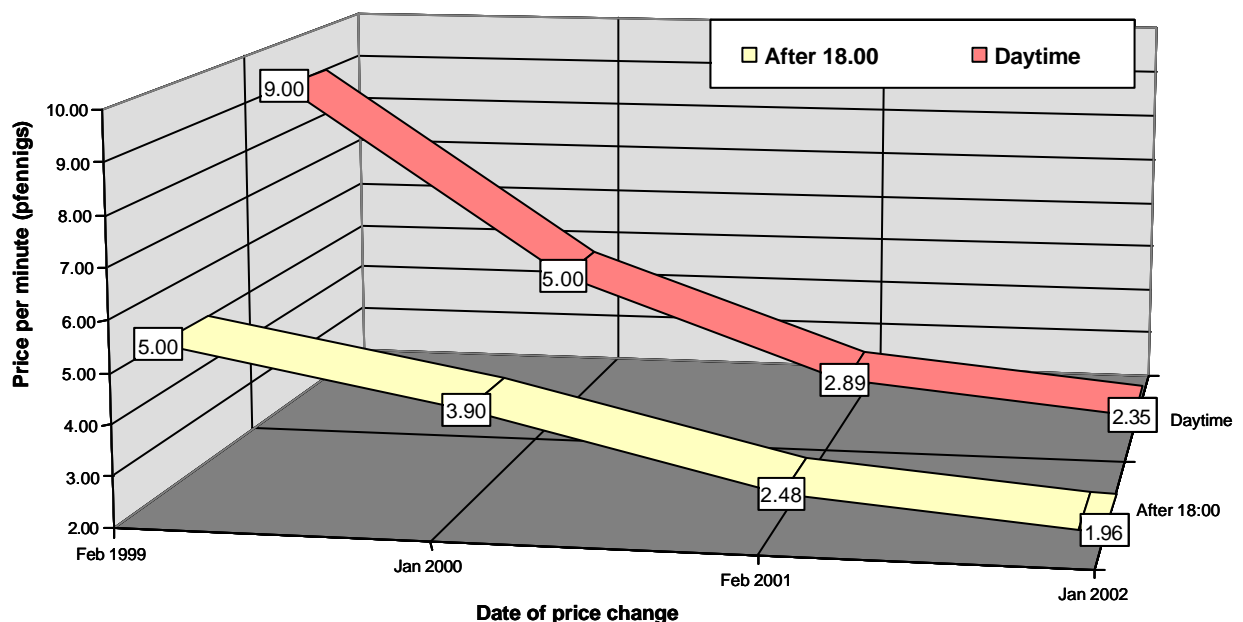
It is the heavy users in Germany in particular that are changing from narrowband (analog/ISDN) to broadband access. At the end of 2001 around **five percent** had a broadband Internet connection, ie ADSL, cable, etc. This represents some **15 percent** of all households with an Internet connection.

Internet Packages

The enormous rise in the number of users and the longer time spent online was the result not least of the lower prices payable for Internet access – both for Internet by call, or pay-as-you-go, and for the unmetered packages.

The pay-as-you-go option involves no monthly subscription charge, registration or minimum usage. These packages have also brought drastic reductions for customers; since February 1999 for instance charges have fallen by as much as **74 percent**. And further reductions are possible with the pay-as-you-go option when users register with their ISP.

Minimum Prices for Pay-As-You-Go Internet Access
(as of 11 January 2002)



The price of Internet usage fell by **30.5 percent**, compared to the previous year. This is also confirmed by the RPI.

ISPs' unmetered packages are aimed particularly at heavy users. They are offered by around **30** of DTAG's rivals, in conjunction with a change of fixed line provider for narrowband Internet access. In addition, some **50** operators provide broadband Internet connections (ADSL, cable TV and powerline communications) for home users, along with unmetered products, some of which have limits on the volumes that can be transmitted, however.

Cooperation with the European Commission

The Commission has issued a raft of Directives and Recommendations to create a legal framework for liberalising Member States' telecoms markets. To assess progress in transposing the regulations, the Commission requires the Member States to provide it with reports giving economic indicators for their respective markets. It then summarises this data. RegTP provides the information for the German market within its sphere of responsibility. The Commission then publishes an annual report on transposition of the reform package in the individual Member States.

Meanwhile, the applicable Directives have undergone a number of amendments to reflect the changing environment. Thus some incorporate amendments made over a number of years. To make the Directives and Recommendations more transparent, the Commission submitted to the Member States in summer 2000 a total of five draft directives and a draft spectrum analysis for comment. These represent a compilation of past regulations. The new arrangements are to be published in the course of 2002, after adoption by the Parliament.

Numbering Administration

RegTP took over responsibility for administering and allocating numbers in Germany when the telecoms market was opened up to competition. Numbering administration first involves structuring the national numbering space. Also part of the national resource managed by RegTP are the so-called "technical numbers" such as carrier portability codes, National and International Signalling Point Codes (NSPCs and ISPCs), charging reference branches, Closed User Group Interlock Codes (CUGICs), and manufacturers' codes for carriers and service providers. At the same time, allocation rules that every user must observe are needed for the different types of number. Against the background of 0190 numbers becoming scarce, rules were introduced in 2001 for allocation of 0900 numbers. These are numbers for so-called premium rate services. They have no rate indicators and so can be flexibly priced. From 3 December 2001 these numbers can be applied for from RegTP.

Service providers apply to RegTP for blocks of 1,000 local numbers to suballocate to their customers. By the end of 1998, 3,088 blocks of local numbers had been allocated for 710 call areas and 53 operators, and as little as two years later, 50,861 blocks for 5,200 areas and 89 operators. At the end of 2001 a total of 59,372 blocks had been allocated to 5,200 call areas and 86 operators.

Demand for numbers for value added services – 0700 personal numbers, 0800 freephone numbers, 0180 shared cost service numbers and 0190 and 0900 premium rate numbers – has grown vigorously (data as of end of November 2001).

Service	Allocated in 2001	Total allocated
0800	14,380	135,117
0700	21,348	79,512
0180	12,077	92,145

There is also strong demand for the technical numbers, with an exceptionally large increase in the number of allocations for NSPCs, or National Signalling Point Codes (data as of November 2001).

Technical Resources		
Allocations	2001	Total
NSPCs	406	1,599
ISPCs	61	252
Portability codes	21	146
CUGICs	1	16
Charging reference branches	11	96
Equipment manufacturer codes for telematic protocols	2	10
Notification of International Carrier Codes (ICCs)	-	9
Mobile Country Codes (MCCs), Mobile Network Codes (MNCs), Network Colour Codes (NCCs)	-	16
Data Network Identification Codes (DNICs)	-	16

Numbering Resources		
Allocations	2001	Total
User groups	1	8
International Virtual Private Networks (IVPNs)	3	29
Innovative services	1	4

Rights of Way

Under the TKG, RegTP must give its approval before public ways can be used if the authorities responsible for their construction and maintenance are licence holders themselves or are merged with a licence holder within the meaning of the Restraints of Competition Act (GWB). In 2001, this was the case in 94 towns and cities in Germany. Against this background, RegTP's Regional Offices grant approval to licence holders wishing to use public ways to install new or modify existing telecoms lines. The Regional Offices are expected in 2001 to issue around 5,700 approval certificates to licence holders for building measures.

Key Elements on Market Definition and the Establishment of Dominance

Full liberalisation of the telecoms sector in January 1998 has spawned a dynamic industry with a diversity of offerings. Competitive processes are clearly recognisable. Thus the Federal Economics and Technology Ministry (BMWf) proposed that a look be taken at whether or not the market was overregulated and if so, how regulation could be scaled back over the short and medium term. Given the special role that dominance plays as the trigger for regulatory intervention, BMWf proposed that the definition of product and geographic markets receive special attention. This set of problems had also been acknowledged during the handling of applications from DTAG on the dominance issue.

To clarify the above, RegTP commissioned reports in preparation for a paper on the definition of product and geographic markets, which was then made the subject of a public consultation. Opinions varied greatly, depending on the interests affected and pursued. RegTP's decision-making practice to date was not seriously called into question, however. The views and propositions put forward were discussed at a forum held by RegTP on 27 August 2001, "Market Definition and Dominance in Telecommunications Markets Under Discussion".

A summary of the comments received and RegTP's conclusions were subsequently published in RegTP's Official Gazette 19/2001, Communication 547/2001. The most important conclusion drawn for RegTP's future work from the comments, which represent the interests in this sector, and the subsequent debate, is the primacy of decisions based on the individual case. RegTP's current practice of defining markets according to demand substitutability in the given case and of investigating whether or not a company has a dominant position by looking at all the relevant facts is in conformity with the GWB. RegTP will therefore, as in the past, seek to achieve a consistent interpretation of the TKG and one which ensures coherence with the GWB in each case, in agreement with the Federal Cartel Office.

Frequency Management

Enactment of the Frequency Ordinances

The Bundesrat's approval on 30 March 2001 of the three ordinances, viz the Frequency Band Allocation Ordinance (FreqBZPV), the Frequency Usage Plan Ordinance (FreqNPAV) and the Frequency Assignment Ordinance (FreqZutV) paved the way for their entry into force. The three Ordinances address specific frequency spectrum topics, and safeguard the interests of the federal states in respect of broadcasting matters under their jurisdiction.

Thus besides definitions of the 40 or so radio services, the Frequency Band Allocation Ordinance features the Table of Frequency Allocations and the Usage Provisions. This Table allocates the frequency bands to individual radiocommunication services and to other applications of electromagnetic waves. It is the basis for the Frequency Usage Plan drawn up by RegTP, which contains detailed allotment of the bands to the individual usages and provisions concerning these usages.

The procedure for drawing up the Frequency Usage Plan is set out in the Frequency Usage Plan Ordinance. To be observed in particular is the participation of the federal government and the federal states as well as that of interested parties.

The Frequency Assignment Ordinance regulates the procedure for assigning frequency spectrum. It contains provisions on the content and extent of assignment, and describes the main technical and regulatory requirements. The Ordinance also includes further provisions on the revocation and expiry of assignments and provisions addressing assignment modifications and restrictions.

Trunked Radio

The ruling of 18 February 2001 was a response to the changing conditions in the trunked radio market, and considerably facilitated entry. The so-called three operator concept of the early 1990s, based on the idea of three licence holders in economically thriving areas with licences awarded by tender, was abolished. Since March 2001 therefore, entry to the trunked radio market has been unrestricted with licences awarded upon application – albeit still on a regional, not a national, basis. Scope has also been provided for issuing open standard licences, as requested by the applicant (for a maximum licence area of 15,000 sq km). This allows the old analog systems to be used alongside digital systems in the same band. The determination has also opened up the band at 410 – 430 MHz, hitherto reserved for licensed trunked radio, to licence-exempt networks (private business radio networks). The ruling on the award of licences for publicly available trunked mobile services (RegTP Official Gazette of 28 February 2001) has created a new regulatory framework enabling RegTP to respond flexibly and appropriately to the current trunked radio market dynamic.

UMTS/IMT-2000

Infrastructure Sharing

After the auction of the UMTS/IMT-2000 licences in August 2000, the question arose for the licence holders of possible cooperation in building out their UMTS networks, to make time and cost savings. After investigating the technical scope for network sharing and compliance with the licence conditions, RegTP set out its position on 5 June 2001 on cooperation schemes between the UMTS/IMT-2000 licence holders.

Accordingly, the UMTS licence conditions in Germany were not to be changed but would still require compliance when the technical environment for infrastructure sharing moved on. The licences were sufficiently flexible to accommodate advances in the access technology. However, the technical equipment had to be configured in such a way as to assure the licence conditions. Manufacturers' models showed that both "functions control" over the networks (legal control) and the independence of the competitors as licence holders would remain intact if certain basic conditions were observed. RegTP did not issue any new determinations, but clarified the existing rules in order to provide certainty about possible cooperation schemes.

The clarification statement is available in German and English on RegTP's website at www.regtp.de. Meanwhile, the UMTS licence holders have signed two cooperation agreements in light of the above guidelines.

Frequency Usage Plan

The Frequency Band Allocation Ordinance, the Frequency Usage Plan Ordinance and the Frequency Assignment Ordinance, drawn up under Part VII of the TKG which addresses frequency regulation, were enacted in May 2001 (Federal Law Gazette I No 20 of 8 May 2001). Particularly important is the Frequency Usage Plan Ordinance since it provides the legal basis for the Usage Plan which, in turn, is the basis for frequency assignment.

Preparatory to the Frequency Usage Plan required under Section 46 of the TKG, RegTP had in early 2000 published its "Administrative Principles for Frequency Usage" (VwGrds-FreqN). This is a loose-leaf publication of tables detailing all the frequency usages in Germany in the range from 9 kHz to 275 GHz. The tables show which bands have been allocated to which services, and which subbands designated for which types of radio application. There are also brief descriptions of the usages, information on relevant approval specifications, frequency assignment procedures, licensing requirements, usage periods, national and international planning, other recommended usage parameters and provisions for using frequencies for other purposes (eg industrial, scientific, medical, domestic applications). The publication is available from RegTP, Dienststelle 214a, by faxing +49 (0)228 14-6125 or emailing Wolfgang.Becker@regtp.de. Copies are priced at €38.35 plus postage and packing, with payment preferably upon delivery.

RegTP currently draws up the Frequency Usage Plan following the Frequency Usage Plan Ordinance and the Administrative Principles for Frequency Usage. The Usage Plan consists at present of a total of 462 subplans in line with the frequency subbands in the Frequency Band Allocation Ordinance. Mindful of the substantial updating that transposing the administrative principles into the (draft) Usage Plan would require, RegTP, to save time, decided to bring forward two particular Usage Plans. These are the two subplans 198 (156.8375 – 174 MHz) and 223 (440 – 470 MHz), not included in the administrative principles at the time and not therefore published. Subplan 198 addresses, amongst other things, ERMES, and subplan 223 paging, single channel fixed links, trunked radio, fixed wireless access and the bands formerly used for the mobile C network. These two drafts are in progress and will shortly be presented to the public, in accordance with the requirements of the Frequency Usage Plan Ordinance. Subsequently the procedure set out in the Ordinance will be initiated for all the other draft subplans (460 drafts).

How the public is to participate is also set out in the Ordinance. The supreme federal and state authorities, interested parties and holders of frequency assignments affected by amendments must be given the opportunity to make written comments. RegTP then decides on the definitive version of the Usage Plan.

Refarming

Refarming in the context of frequency regulation means the application of existing and future administrative, financial and technical instruments in order to make specified frequency bands available for a different kind of usage. These instruments can be short term, medium term or long term. The special importance of refarming as

part of frequency regulation is generally affirmed by Europe's national frequency administrations. This is shown by, amongst other things, the exchanges of views that have taken place in international bodies and which aim to analyse the concept of refarming more thoroughly than hitherto. Given that frequency spectrum is a finite resource for which demand is growing significantly, the question arises of whether or not the existing frameworks that the national administrations have put in place will be sufficient to deal with demand in the future.

As things stand at present, the following measures are conceivable:

- a) Refarming tools at planning level
These include a survey of spectrum requirements and amendments to the frequency allocation plan and/or the frequency usage plan.
- b) Refarming within the framework of existing usages
Cited here should be revocation of frequencies already assigned, whereby the grounds warranting revocation may differ considerably (cf Section 49(2) of the Administrative Procedures Act, Section 8 of the Frequency Assignment Ordinance and Section 47(5) and (6) of the TKG).
- c) Tools to facilitate later refarming measures
These include time limits and/or a revocation proviso.

One of the next goals will be to extend the range of tools so as to create the proper environment for refarming.

Paging

The ruling of 13 December 2000 determined that a licence to operate transmission paths for the provision of publicly available radiopaging services in the Federal Republic of Germany in the band at 460 MHz would be awarded by tender, following the return by T-Mobil of its paging licence in 2000. Tenders were then invited in RegTP's Official Gazette of 17 January 2001, which published the rules for award of the licence. The tenders received were evaluated and e*message Wireless Information Services Deutschland GmbH was awarded the licence on 26 June 2001. On 10 January 2001, Miniruf GmbH also handed back the licence it had been granted in 1994 in the band at 448 MHz. These two handbacks in quick succession meant another licence was available. Thus a public consultation in accordance with Section 28 of the Administrative Procedures Act and Section 11(1) of the TKG was launched in RegTP's Official Gazette of 28 February 2001 to ascertain interest in renewed award. However, no interest was established and thus no new award proceedings were held.

Satellite Communications

The interest in satellite licences (Class 2 licences) remained constant, with six licences being awarded in 2001. Four of these were issued to companies with old-type licences dating back to the Telecommunication Installations Act, and which had meanwhile expired. At international level, Germany committed to the "OSS – One Stop Shopping" procedure. Work is in progress to implement this at national level.

Class 3 and 4 Licences

Transmission Paths and Voice Telephony

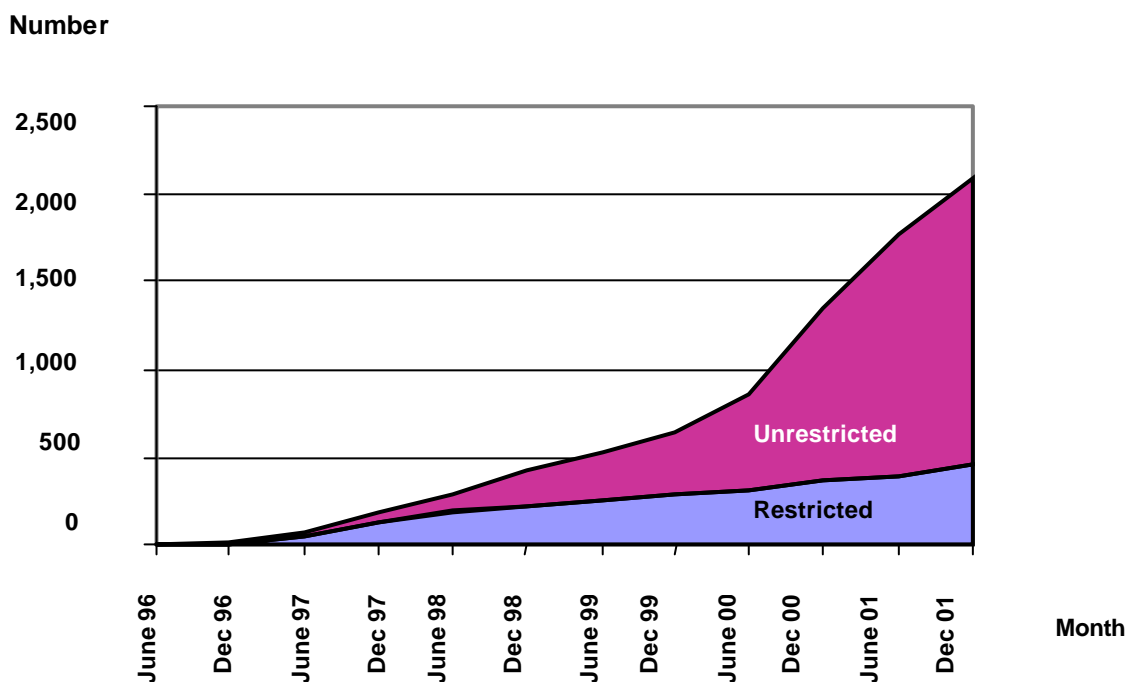
In principle, Class 3 and 4 licences are granted upon application, with no restrictions. Class 3 licences may, however, also be granted with limitations on use of the transmission paths (for receiving and/or distributing broadcast signals only), if the applicant so wishes. Also listed are Class 3 licences awarded to operators of transmission paths for terrestrial sound and TV broadcasting under the jurisdiction of the federal states and/or for the terrestrial distribution of media and teleservices for direct reception by the public (broadcast transmitter operators).

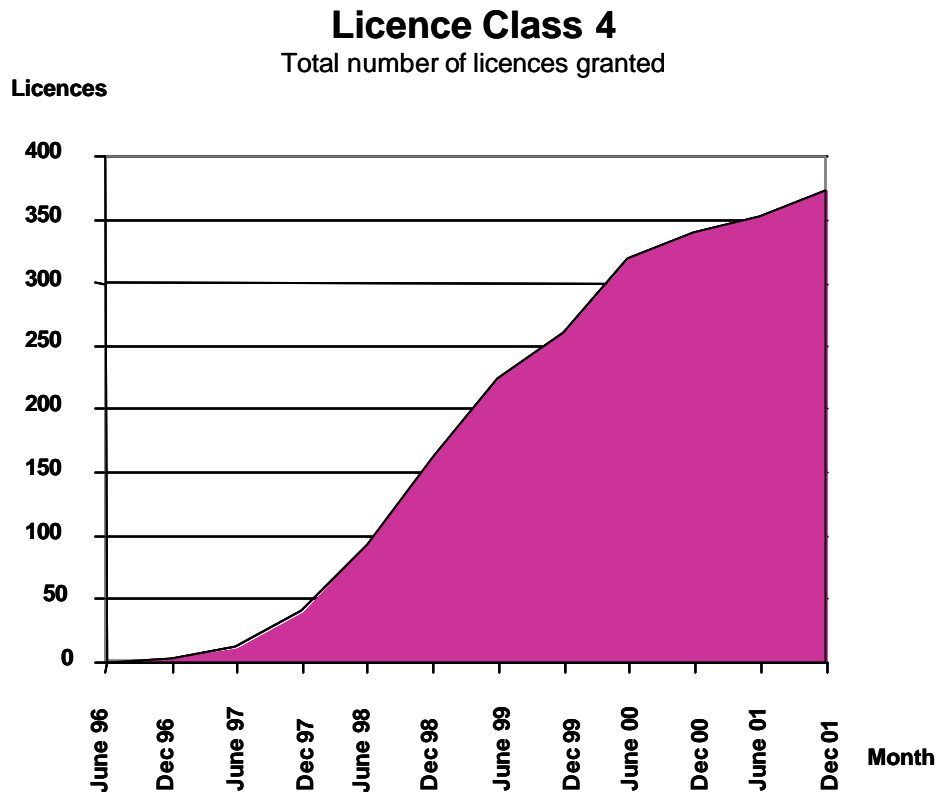
Growth in the Number of Class 3 and 4 Licences

The charts below show how the telecoms market has flourished since the network and voice telephony monopolies were lifted.

Licence Class 3

Total number of licences granted excluding broadcasting licences





To date, 1,629 "unrestricted" and 456 "restricted" Class 3 licences (for transmission paths) and 372 Class 4 licences (for telephone service) have been granted. Between them, 15 broadcast transmitter operators hold 20 Class 3 licences. These 2,477 Class 3 and 4 licences are held by 716 companies. However, mergers, licence transfers and similar circumstances have led to a decrease in the number of holders, compared with the number of companies initially granted a licence.

The number of companies holding a Class 3 licence is 663. Of these, 378 have an unrestricted and 287 have a restricted licence. 184 companies have a Class 4 licence. 23 Class 3 licences and 69 Class 4 licences are national licences.

Helping to Create European Spectrum Utilisation Frameworks

Balanced use of the frequency spectrum is a fundamental infrastructure requirement for every industrialised country. Frequency regulation at RegTP is therefore concerned with the tasks outlined below, in many areas at the conceptual as well as the implementation level, for the direct benefit of network operators, service providers and users alike. Thus over recent years, the telecoms market has developed into a potent economic factor in Germany.

The CEPT Electronic Communications Committee (ECC; previously ERC, or European Radiocommunications Committee) is responsible for radiocommunications and spectrum issues in Europe. The ECC has several permanent Working Groups, backed by Project Teams looking at specific activities. In 2001, RegTP was again actively involved in drawing up the CEPT frameworks for spectrum use. New radio

applications, in particular, require cooperation at international level, in the interest of a European single market.

These are some of the results achieved in 2001:

- Harmonising the frequencies and usage conditions for a number of short range devices and digital trunked radio applications.
- Completion of the third phase of Detailed Spectrum Investigation (DSI III; band at 862 – 3400 MHz). This involved analysing usages and drawing up refarming proposals in a transparent public consultation process, and marks another important step in CEPT-wide frequency usage planning.
- CEPT Recommendations on the technical arrangements for introducing Multimedia Wireless Systems (MWSs) and opening up bands for fixed wireless applications.
- Agreeing general conditions for exempting individual assignments for particular satellite terminals in different bands.
- Release of further frequencies for digital sound broadcasting.

Work was also done on the following:

- Drawing up a strategic plan for PMR/PAMR frequencies (these correspond in Germany to private business radio and trunked radio).
- Creation of a public database (EFIS – ERO Frequency Information System) to make European spectrum utilisation more transparent.

Preparations for WRC-2003

RegTP is actively involved in preparations for the ITU World Administrative Radio Conference in 2003 (WRC-03). The ITU (International Telecommunication Union) is a specialised agency of the United Nations and responsible for telecoms at international level. RegTP is a member of the relevant national and international preparatory bodies. The agenda for WRC-03 includes the following:

- International frequency arrangements for radio local area networks (HIPERLANs / WLANs / RLANs),
- To identify spectrum and usage conditions for high density fixed satellite applications,
- To harmonise frequencies to meet the needs of public protection agencies,
- To introduce digital modulation procedures in high frequency broadcasting,
- To review provisions governing the amateur and the amateur-satellite service,
- To review provisions governing unwanted emissions,
- To review and update the arrangements in the maritime MF and HF bands, having particular regard to the use of new digital technology.

Preparations for Broadcasting Conferences

To advance Terrestrial Digital Audio Broadcasting (T-DAB), CEPT is preparing a further Planning Meeting for the 1.5 GHz band, to be held in the Netherlands in June 2002. As at the first Planning Meeting in Wiesbaden in 1995, there is to be a further T-DAB allotment plan for all CEPT countries in a subband at 1.5 GHz.

RegTP's work in 2001 focused on:

- determining all the technical parameters and procedures for planning,
- drawing up the administrative procedures in readiness for the Planning Meeting,

- identifying the band for T-DAB planning and defining an available band for S-DAB (satellite digital audio broadcasting).

As regards terrestrial digital broadcasting (DVB-T), much work was done under the CEPT umbrella to prepare for the ITU Radiocommunication Conferences in 2004 and 2006 which aim to draw up a digital broadcasting plan in the VHF and UHF bands. These two ITU Conferences are to revise the European Broadcasting Agreement, Stockholm, 1961, applicable to analogue broadcasting, and to replace it with a new agreement promoting DVB-T. The new agreement will cover the European Broadcasting Area at least, but possibly the African Broadcasting Area and neighbouring countries as well (the ITU's final decision is still pending).

RegTP's main work items here were as follows:

- developing the planning basis and defining the technical parameters and procedures,
- spectrum investigations,
- developing administrative procedures for the planning and coordination process.

The focus of RegTP's work in 2001 in respect of the separate radiocommunication services is given in the following.

Fixed Link Systems

Fixed Point to Point Links

Frequencies continue to be in great demand, the main reason being companies' efforts to extend and enhance their portfolio of services. In particular, infrastructure measures for the upcoming UMTS/IMT-2000 networks mean demand is growing for fixed point to point links. But not only are new links being set up, the capacity of existing systems in the GSM networks is also being significantly expanded. Thus the overall capacity of these networks has risen still further. In operation in Germany at the end of 2001 were 47,224 fixed links. Frequencies were assigned in 2001 for 7,307 of these.

Demand was heaviest in the following bands:

	Total assignments	New assignments in 2001
7 GHz band	1,725	192
15 GHz band	4,371	1,015
18 GHz band	3,514	694
23 GHz band	13,261	1,479
26 GHz band	6,145	1,839
38 GHz band	14,070	1,741

Fixed Point to Multipoint Links for Accessing the Customer

The ruling of 12 December 2000 on the award of frequencies for PMP links for fixed wireless access (FWA) in the second round of tenders paved the way for the six successful companies to be assigned a further 161 frequencies. The assignment certificates were drawn up and presented to the holders in early 2001.

The consolidation process underway in the FWA market is responsible for one company handing back frequencies it had been assigned. Currently, 19 companies have a total of 1,631 assignments in the bands at 2.6 GHz, 3.5 GHz and 26 GHz. The assignments cover the whole of the country, enabling customers even in rural areas to have radio-based service as an alternative to the copper wire in at least two FWA networks.

Fixed Point to Multipoint Links for Transmission Paths in Telecoms Networks

Telecoms infrastructure often uses fixed wireless links to implement transmission paths as an alternative to the copper pair. Required therefore for the operation of mobile networks are not only mobile frequencies but also a considerable number of transmission paths to connect the cells and network nodes. In principle, these paths can be realised with fixed point to point links in the shared-use bands between 7 and 38 GHz. An economic solution here, besides the "traditional" point to point links, is the use of fixed point to multipoint systems. By the end of 2001, some 230 area-related individual frequency assignments in the designated subband of the 26 GHz range had been processed. Access to the customer is not possible on these frequencies.

Fixed Point to Multipoint Links for Transmission Paths in UMTS/IMT-2000 Networks

In light of the expected heavy demand for spectrum for the UMTS/IMT-2000 networks, part of the 28 GHz band was dedicated in mid-2001 for fixed link usage in these networks. The frequencies are assigned for a particular coverage area, and within this area can be used by an indefinite amount of radio equipment. Frequency assignment entitles the holder to set up fixed point to point and fixed point to multipoint systems. Licence holders can therefore implement transmission paths quickly and flexibly, in line with rollout requirements. The first 30 assignments for coverage areas like Berlin/Potsdam, Dortmund/ Düsseldorf, Hanover, Munich and others were made at year's end.

International Frequency Coordination in the Fixed Service

The use of spectrum for fixed link applications in border areas requires the frequency usages to be coordinated with the countries concerned. Hitherto, coordination has been performed under ITU rules and will be governed in future by the provisions of the Berlin Agreement concluded in September 2001 in Berlin between 16 European countries. The aim of the Berlin Agreement is to enhance efficient frequency usage in border areas also. In 2001, a total of 8,250 coordinations for German fixed link applications in border areas were carried out. Over the same period, comments were required on 4,255 coordination requests from neighbouring countries. In addition to these coordinations for individual frequencies, altogether eight bilateral and multilateral additional agreements for preferential frequencies were concluded for the bands at 2.6 GHz, 3.5 GHz and 26 GHz. This simplifies the coordination of frequency usages in these bands. All that is needed is advice of the plan to put preferential frequencies into operation.

Satellite Communications

The lively interest in satellite-based services continued in 2001. One of the reasons is that satellite services are an economic alternative to wired transmission paths in some areas, and an alternative that can be implemented quickly.

In 2001, RegTP made new assignments for around 400 transmitting earth stations. These were larger stations for VSAT systems, 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), but also for portable SNG (Satellite News Gathering) systems. Coordination with fixed link systems sharing the same bands was necessary for 45 assignments (119 individual frequencies).

Late 2001 saw a marked growth in satellite communications with the introduction of return channel systems for interactive applications such as Internet access and satellite video-on-demand. Measures based on ERC Decisions were drawn up to exempt certain VSAT usages (particularly in the band at 14.0 – 14.25 GHz, small antennas and a maximum of 50 dBW EIRP) from individual assignment. These arrangements will likely become effective in early 2002, by publication in RegTP's Official Gazette. Receive-only satellite earth stations can already be operated without individual frequency assignment.

RegTP in 2001 submitted to the ITU in Geneva 38 publications for existing German satellite network filings, prompting 88 statements from foreign administrations. To date, Germany has filed 30 geostationary and 13 non-geostationary satellite systems with the ITU. Included in the ITU's Circulars were 155 objections to foreign filings, the aim of which was to protect German satellite systems (and terrestrial radio services). One focus of coordination activity was the German filing for the European satellite navigation system GALILEO (GALILEO-NAV-2004).

Broadcasting

RegTP in 2001 processed the following assignments for broadcasting services:

248	assignments for the very high frequency (VHF) band,
46	assignments for TV,
523	assignments for the high frequency (HF) band,
21	assignments for the medium frequency (MF) band,
342	assignments for commercial terrestrial digital audio broadcasting (T-DAB) operation,
70	assignments for test digital video broadcasting (DVB-T) operation.

T-DAB

The progress of T-DAB varies from region to region. In northern Germany in particular, the response has been muted. To date, RegTP has not made any frequency assignments for commercial T-DAB operation in the federal states Bremen, Hamburg, Mecklenburg-Western Pomerania and Schleswig-Holstein. In the remaining states a total of 1,251 assignments for commercial operation had been made by December 2001.

DVB-T

Digitisation of terrestrial TV broadcasting is proceeding apace as a result of the government decision to convert analog to digital by the end of 2010 at the latest. The government's aim is the development and promotion of viable scenarios for the introduction of digital technology for broadcast transmissions, TV and multimedia services included, for users across the country. The frequency bands III, IV and V have been earmarked for this. No new assignments are planned in frequency band I.

DVB-T trials are underway in nearly all the federal states. To date, RegTP has issued 70 frequency assignments for these.

Preparations for DVB-T frequency award kicked off with publication of the DVB-T key elements in Order 31/2001 in RegTP's Official Gazette of 25 July 2001. The comments and position papers received are currently being evaluated in readiness for a determination by the President's Chamber.

Mobile Communications

RegTP dealt in 2001 with

- 12,000 cases (such as new assignments, modifications, withdrawals and handbacks) for private business radio (PBR), 3,500 of these being new assignments. PBR systems carry the internal communications of industrial and commercial users (eg industrial undertakings, transport companies), public administration (eg local authorities, highway maintenance depots) and public safety organisations (eg police forces, fire brigades, rescue services).
- 1,700 cases for mobile data and telemetry and telecommand, eg remote control of equipment, remote data retrieval, transport management systems, warning systems, 900 of which were new assignments.
- 15,900 cases for Citizens Band (CB) radio, 4,700 of which were new assignments.
- 7,400 cases, 7,300 of which were new assignments, for radio equipment for the remote control of models; and
- 4,900 cases, 3,200 of which were new assignments, for other PMR applications such as paging and radio microphones.

International Frequency Coordination for Mobile Services

Frequencies do not stop at borders. In many cases therefore, coordination must be carried out with neighbouring telecoms administrations so that mobile spectrum is available for German users. This is particularly necessary in respect of base stations in the D and E networks. There are restrictions on usage in the border areas as the usage possibilities are divided equally between the countries through the mechanism of preferential frequencies.

In the band at 29 – 470 MHz the usage restrictions are greater on account of the considerably lower degree of harmonisation than, for instance, in the public networks in the 900 and 1800 MHz band. Hence before spectrum can be made available for German users an enquiry must first often be made of one neighbour administration at least; conversely, this must be done when neighbouring countries wish to implement usages in their border areas. The purpose of these enquiries is to ensure interference-free use of radio stations in these areas. This is particularly necessary when it comes to the services provided by public authorities and public safety organisations. In 2001, a total of 3,000 coordinations were made for German and 2,700 for foreign radio stations.

In June 2000 the existing coordination agreement was revised in Vienna and widened in September 2001 in Berlin to include digital trunked radio and UMTS systems. This was the basis on which the present additional agreements with neighbouring countries on preferential frequencies in the subbands at 146 – 174 MHz, 410 – 430 MHz (for trunked radio as well) and 440 – 470 MHz were revised and new ones drafted. This will simplify coordination to the extent that it will

not be necessary in some parts of the band to make enquiries of the neighbouring country – all that will be required is advice of the plan to put the frequencies into operation. Because of the need to take account of existing usages, however, such agreements will only be possible in certain subbands, and sometimes there will be very little, or limited, scope for negotiation. In respect of digital trunked systems it was possible to have the current analog transmission restriction lifted.

International Coordination of UMTS/IMT-2000 Networks

Section D of the Ruling by the President's Chamber of 18 February 2000 on the Rules for Conduct of the Auction for the Award of Licences for UMTS/IMT-2000, 3G Mobile Communications (published by Order 14/2000 in RegTP's Official Gazette 4/2000 of 23 February 2000) stipulated that the exact spectral position of the abstract frequency blocks would be determined following the auction in consultation with the successful bidders. The blocks were then allotted in light of the comments received, in agreement with the licence holders.

RegTP is currently taking part in bilateral and multilateral negotiations with Germany's neighbouring countries on usage conditions in the border areas. Agreements have been signed with the Netherlands, Belgium, Luxembourg and Switzerland and have almost reached completion with Denmark, Poland, the Czech Republic and Austria; the situation with France is still unresolved in view of the military fixed link system in parts of the UMTS/IMT-2000 band.

Temporary Use Assignments

RegTP assigns frequencies for temporary use mostly for foreign visitors wishing to operate radio transmitting equipment for a limited number of hours or days to cover, for example, sporting, cultural or media events and state visits. Often, they require frequencies that are used in Germany for other purposes. In these cases RegTP must examine whether or not temporary use is nevertheless possible without detriment. A large number of the assignments are for the Formula 1 races at the Hockenheimring and the Nürburgring.

RegTP made the following assignments in 2001 for foreign visitors:

	Assignments in 2001	
Motor sports (excluding Formula 1)	181	assignments with 1,556 frequencies
Formula 1	119	assignments with 975 frequencies
Other events	308	assignments with 3,227 frequencies
Total	608	assignments with 5,758 frequencies

These assignments were issued for 159 events. Random checks were carried out for compliance with the assignments at 28 events. At eight events, 19 cases of irregularities were found and 12 administrative offence procedures initiated.

Experimental Radio Services

In 2001 RegTP dealt with around 800 frequency assignments for experimental radio services, most notably trials by the system houses manufacturing 3G equipment and propagation/coverage area measurements by the future operators.

New assignments were chiefly granted for

- UMTS system development,
- UMTS propagation/coverage measurements,
- Network buildout and development activities for digital trunked radio systems,
- Short range devices, eg Bluetooth,
- WLANs at 5 GHz.

Radio Operator Licences

RegTP's Regional Offices in 2001 issued 10,688 maritime and 6,928 flight radiotelephony operator licences.

Amateur Radio

The number of licences and assignments is slightly up on the previous year's as a result of more Class 3 licences.

Class	Number of licences/ individual call signs	Number of additional call sign assignments				Total number of call signs assigned
		Club stations	Repeaters/ beacons (including experimental stations)	Special assignments Section 16 of AFuV ¹¹	Training	
1	43,057	2,307	22	27	579	45,992
2	32,771	148	978	1	73	33,971
3	3,943	10	2	1	39	3,995
Total	79,771	2,465	1,002	29	691	83,958

Telecoms Technical Regulation

The regulatory environment of telecoms is changing fundamentally and at ever greater speed. There have been huge advances in the connectivity, maturity, content and features of the technical systems and the services they deliver. Undoubtedly, one contributing factor has been liberalisation of the telecoms sector, which has not only brought new entrants into the market but has also forced existing companies to drastically rethink their business plans. Convergence of the three pillars, telecoms, IT and media – and of their sub-structures such as fixed/mobile, radio/cable – is posing new questions for the regulator all the time. New norms and standards are defining the new growth markets like the one created by the connection of households via telecoms, eg the Internet. And the "last mile" is no longer necessarily provided by telephone lines; increasingly, the data streams are flowing over cable connections. For the broadband cable customer this will soon mean more than just the reception of

¹¹ Amateur Radio Ordinance

sound and TV programmes but a raft of telecoms services as well (eg Internet access, telephone service, data transmission, home banking, email services). Even the use of powerlines is envisaged. Moreover, 3G mobile telephony (UMTS) is set to enter the market in about a year's time, delivering vast amounts of data. In the national and international standardising bodies RegTP is currently addressing issues such as the implications of the new EU directives, media convergence, UMTS/IMT-2000 and beyond, satellite communications, use of coaxial cable for telephone and data transmission to interactive networks, regulating the return channel in interactive networks, radio compatibility, electromagnetic radiation and the environment (setting up an online database of transmitter sites), telecoms security, transposition of the R&TTE Directive into the R&TTE Act, functions assignment for notified bodies, consumer protection and market watch.

National and International Activities

Experts from RegTP are involved in national and international working groups at, for example, the European Commission, the International Telecommunication Union (ITU), the European Conference of Postal and Telecommunications Administrations (CEPT), the European Telecommunications Standards Institute (ETSI), the International Standards Organisation/International Electrotechnical Commission (ISO/IEC), the International Maritime Organization (IMO), the International Civil Aviation Organization (ICAO) and the German Standards Institute/German Electrotechnical Committee (DIN/DKE). In producing the standards they actively contribute towards safeguarding national regulatory aims and a balanced representation of interests.

RegTP was represented during the year in

- 29 project teams and working groups at the CEPT European Radiocommunications Committee (ERC) and the European Committee for Telecommunications Regulatory Affairs (ECTRA),
- 54 bodies in the ITU Radiocommunication Sector (ITU-R),
- 15 bodies in the ITU Standardization Sector (ITU-T),
- 5 other ITU bodies (eg Telecommunication Standardization Advisory Group, or TSAG),
- 74 bodies at ETSI, including the Board and the Third Generation Partnership Project (3GPP),
- 25 international meetings (eg Telecommunication Conformity Assessment and Market Surveillance Committee, or TCAM, EU workshops),
- 102 national meetings (eg powerline communications, compatibility issues, DIN/DKE).

Market Surveillance under the EMC Act and the R&TTE Act

According to the information to hand, some 65,000 new equipment types, or 250 million items of electrical or electronic equipment and components, are placed on the German market each year. This represents around 30 percent of the market of the European Economic Area.

The inspections and tests aim to verify

- compliance with the CE marking requirements,
- the plausibility of the EC conformity declarations,
- compliance with the relevant EMC protection requirements,

- compliance with the essential requirements of the R&TTE Directive,
- the information on intended use and any operating restrictions on radio equipment and telecoms terminal equipment.

RegTP is tasked with inspecting and testing electrical products on the German market under the EMC Directive 89/336/EEG, the R&TTE Directive 1999/5/EC and the German implementing regulations – the EMC Act and the R&TTE Act of 31 January 2001 respectively.

In 2001, RegTP inspected a total of 18,820 products, 16,252 under the EMC Directive and 2,568 under the R&TTE Directive.

It found irregularities in the CE marking or conformity declaration of 445 of these items, ie 2.36 percent of the products checked. It also tested 5,070 items from 1,144 series of equipment and 214 one-off products. Its results showed 307 series of equipment and 47 one-off products, ie 27 percent and 22 percent respectively, not to meet the EMC protection requirements or the essential requirements of the R&TTE Act. The checks are made on representative samples of the different product groups in the German market, and the products grouped in line with the applicable testing standards. A scaled procedure was again used in 2001 to assess compliance with the protection/essential requirements. This allows greater differentiation in dealing with breaches of the EMC Act. Initially, the offending party is given the opportunity to state their case. Only after this has happened and the records have been examined is a decision on further action – a ban on distribution, or another such administrative act – taken. Likewise, the EMC Cost Ordinance can also be applied with differentiation. Over the year, 95 sales bans were imposed under the EMC Act and 14 under the R&TTE Directive on grounds of non-compliance with the protection/essential requirements or the CE marking. Of these, 41 led to invocation of the safeguard clause, and 38 cases are still pending. Also, the sale of twinkling antennas was banned on account of the interference caused to public telecoms networks. The Cost Ordinance was applied in 149 cases of breaches of the EMC Act and the R&TTE Act and approximately DM 550,000 taken.

Radio Compatibility

Compatibility studies continued to be updated even after the auction of spectrum for UMTS, in tandem with work on developing and standardising 3G systems, in order to create the technical and regulatory environment across Europe for timely, feasible licensing of terrestrial UMTS.

The debate is continuing within ITU and CEPT about possible UMTS extension bands and already about the generation beyond UMTS. The lengthy periods required to single out potential frequency bands are essential, given the aim of harmonising mobile usages at international level. The proposals drawn up by the ITU and CEPT bodies must be examined for national availability and for compatibility in the new environment.

Top priority was given to investigating the risk of interference to radiocommunication services through unintentional radiation from cable networks and powerlines. The planned introduction of powerline communications and the rollout of xDSL can both cause interference to radiocommunication services through the unintentional radiation of electromagnetic fields over the powerlines. The enactment in 2001 of the

Table of Frequency Allocations meant the introduction of Usage Provision 30 which RegTP had helped draw up and which specifies the interfering field strength limits which, when observed, permit frequencies for telecoms systems and telecoms networks to be used freely without further regulation. Exempted are usages in bands in which safety-related services are operated. The targets for cable use were also addressed by national and international bodies with the aim of finding a single solution for Europe, as far as possible. RegTP is always concerned to balance the interests of the cable operators and manufacturers with the protection requirements of the radiocommunication services.

Working closely with CEPT and ITU working groups, RegTP experts in 2001 examined numerous other new usages for their compatibility with other radio services. Most of the work was in the following areas:

- In connection with the introduction of radio local area networks (RLANs), regulatory measures were prepared for the 5 GHz bands (HIPERLAN/2) and studies of compatibility with other applications carried out.
- To ensure interference-free operation of DVB-T, studies on the mutual compatibility of DVB-T and other radiocommunication services were made. There was also consultation on making inhouse T-DAB and DVB-T reception possible.
- There was participation in CEPT and ITU work on specifying limits for the unwanted emissions of radio applications. Mainly addressed were the protection requirements for the passive services (eg the radio astronomy service).
- In light of the changed environment for TETRA 900 MHz and TAPS (TETRA Advanced Packet Service) the GSM 900 compatibility studies were revised and widened.
- The industry is planning to use Ultra Wide Band Technology (UWB) for various applications such as collision-avoidance systems for motor vehicles. Besides the regulatory issues involved, UWB's compatibility with other radiocommunication services has to be clarified. However, as shared use of some bands is involved which have been dedicated exclusively to third parties or which enjoy special protection under the ITU Radio Regulations (eg radio astronomy), it is an issue that can only be resolved by an international consensus with input from the parties affected. RegTP has an important intermediary function here.

EMC Standardisation

RegTP was again active in 2001 in safeguarding consumers' interests in international standardisation activities, successfully contributing for example to having the interference caused by electrical and electronic systems, equipment and devices kept within defined limits in all new areas. It also actively contributed to questions concerning consumers' expectations of minimum immunity of household appliances and radio equipment. Innovative amendments were proposed and introduced via the standardising bodies to the classic radio disturbance standards, eg EN 55011 (EMC for industrial, scientific and medical radio-frequency equipment), EN 55014 (EMC for household appliances, electric tools and similar apparatus) and EN 55022 (EMC for information technology equipment).

The range of harmonised European electromagnetic compatibility standards for radio equipment applicable under the R&TTE Directive and the R&TTE Act were extended by five special parts of the ETSI EN 301 489 series. Also completed meanwhile are Parts 22 (Specific conditions for ground based VHF aeronautical mobile and fixed radio equipment) and 23 to 26 (IMT-2000 radio equipment). EMC standards for

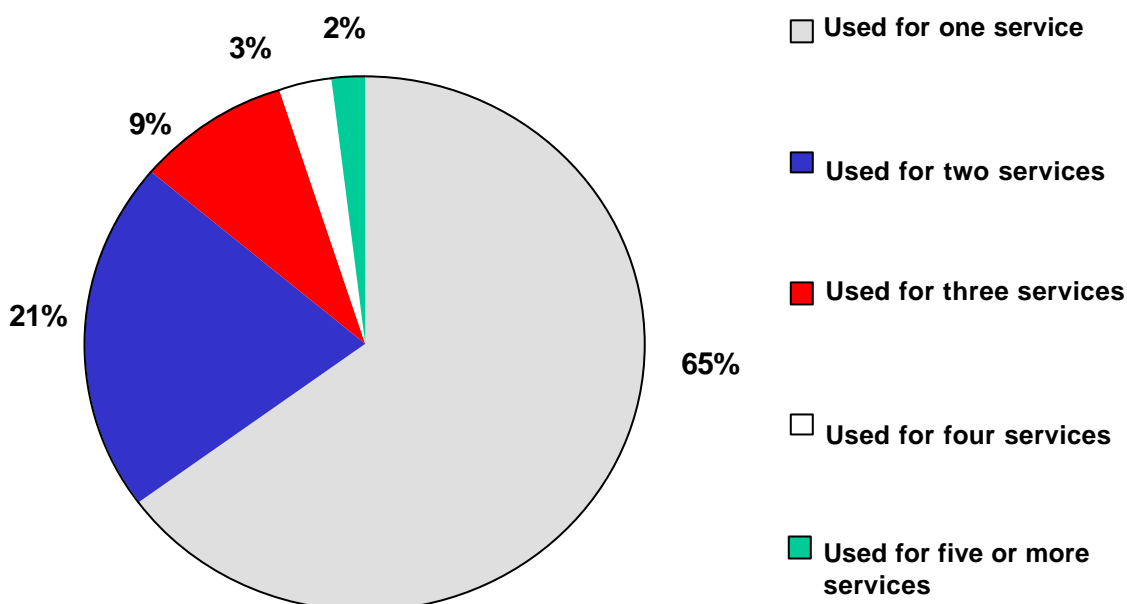
terrestrial transmitters (sound broadcasting: EN 301 489-11, TV broadcasting: EN 301 489-14) were advanced rapidly with input from RegTP and have successfully cleared the first hurdle in ETSI's adoption process, the public consultation. In the meantime, three harmonised European EMC standards from the EN 301 843 series are available for conformity tests under the R&TTE Act for marine radio equipment.

Protection against Radio Frequency Fields

RegTP carries out transmitter site certification to make sure that all fixed radio transmitters in operation comply with defined personal safety and cardiac pacemaker limits. Its aim in doing so is to protect persons exposed to electromagnetic fields. RegTP does not evaluate the limits or comment on the work of the critics. Instead, it points to the competence of the Radiation Protection Commission (*Deutsche Strahlenschutzkommission, or SSK*).

RegTP had suggested to the Federal Economics and Technology Ministry that a database of transmitter sites be set up in an effort to bring greater transparency to the debate. It has now begun to install the database, meanwhile the subject of an agreement between the mobile operators and leading local authority associations. Its main feature is a list of addresses of all the sites certified to date. Access to the database is chiefly intended to help local authorities carry out their various public service functions (eg town planning and building regulations, preventive health measures).

Mobile Transmitter Site Sharing



Approx total of 40,000 transmitter sites

Designation of Conformity Assessment Bodies

Mutual Recognition Agreements

Several Mutual Recognition Agreements (MRAs) have been signed between the European Community and non-EU countries on the mutual recognition of conformity assessment procedures. The aim of the MRAs is to promote trade by facilitating bringing products to market. MRAs are currently in place between the EU and the US, Canada, Australia and New Zealand, and in preparation with Japan, Switzerland, Israel, Hungary, the Czech Republic, China and Korea. In Germany, the Federal Economics and Technology Ministry (BMWi) designates the conformity assessment bodies (CABs) in the telecoms equipment and EMC sectors. However, the tasks of testing and recognising CABs were transferred from the Ministry to RegTP effective 20 April 2001. Under the MRA with the US, six CABs have now been designated and accepted by the Federal Communications Commission (FCC). Designation itself was preceded by a comprehensive assessment addressing competence in dealing with US legal and administrative provisions and the US specifications. Updated lists of approved CABs can be viewed on RegTP's website at www.regtp.de > *Technische Regulierung Telekommunikation* > *Anerkennung von Konformitätsbewertungsstellen* > *Drittstaatenabkommen (MRA)* > *Listen der designierten CABs*.

Appointment and Recognition

RegTP's remit also includes appointing notified bodies and recognising competent bodies in accordance with the terms of the EMC Act and recognising notified bodies in accordance with the terms of the R&TTE Act. Currently, 23 competent bodies have been recognised and four notified bodies appointed under the EMC Act and seven notified bodies recognised for the purposes of the R&TTE Directive 99/5/EG.

Quality System Certification

RegTP has been certifying quality systems to the DIN EN ISO 9000ff series of standards since 1996. Certified quality systems have long given the holders a competitive edge. A number of statutory requirements have been introduced in recent years, however, with a view to protecting the customer. These oblige certain groups of service provider to demonstrate compliance with defined due care requirements. It is becoming more and more usual to demonstrate compliance by the presentation of a certificate issued for an approved quality system. Customers in the public sector in particular tend to make contract award dependent on proof of a certified quality system. Such certification also gives entrepreneurs greater legal certainty. In 2001 RegTP issued a first certification for one company, renewed certification for five companies and carried out surveillance procedures in fourteen others.

Accreditation of Test Houses and Quality System Certification Bodies

Until the R&TTE Act entered into force, RegTP's accreditation office was responsible for accrediting test houses and quality system certification bodies in the statutorily regulated fields of telecoms and electromagnetic compatibility. Following the declared aim that the state should only be active where it has an explicit mandate, RegTP on 6 April 2001 duly closed its accreditation office (Section 20 of the R&TTE Act, Repeal of the Functions Assignment and Accreditation Ordinance of 10 December 1997).

Interfaces in Public Telecoms Networks

Early on, RegTP drew the attention of holders of Class 1 to 4 licences to their obligation to give notification of their network interfaces (Official Gazette 6/2000 of 22 March 2000). Even after enactment on 8 February 2001 of the R&TTE Act, many were still failing to comply, so that RegTP was forced to send out written requests to the tardy operators to publish their network interfaces within a specified period. Many operators are now addressing this issue.

Publication of the interfaces is designed to

- facilitate the design of telecoms terminal equipment supporting the use of all services provided over the interface, and
- allow all tests to be carried out in respect of the relevant essential requirements applicable to the terminal equipment.

Examples of interface descriptions can be found on the following website:

http://portal.etsi.org/Portal_Common/home.asp.

EU Projects Preparing Candidate Countries for Membership

Projects are underway in all candidate countries for the transposition into national law of EU Directives, for instance, the R&TTE Directive, the EMC Directive, the Low Voltage Directive and the Machinery Directive, aid and support being provided by specialists from the Member States. RegTP is taking part in one such project in Poland, advising on how to embed the R&TTE and EMC Directives into Poland's legal framework. The practical arrangements deriving from these Directives are also being worked out in close cooperation with the Polish partners.

Radio Equipment and Telecoms Terminal Equipment

The R&TTE Act was promulgated in Federal Law Gazette Part I No 6 on 7 February 2001 and enacted on 8 February 2001. It transposes into German law Directive 1999/5/EC of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive), applicable EU-wide since 8 April 2000. Once the R&TTE Act had come into force, most of the transitional rules implementing the Directive in Germany, agreed with the Federal Economics and Technology Ministry, were replaced by the legal provisions. Currently, transitional provisions are only still in place for the areas to be regulated by the issue of an ordinance. For suppliers, the German implementing law brings about a further liberalisation of market entry. The type approval regime previously required has been superseded by a system of conformity assessment by the manufacturer with a subsequent declaration of conformity. New products can thus be brought to market significantly faster.

For all those interested in the application of the R&TTE Act, RegTP has posted explanatory notes on its website. The large number of responses – close on 400 every month – are evidence of the public's great interest in the provision of this information. The email address FTEG@regtp.de was also set up to deal with queries and comments on application of the R&TTE Act, and enabled a prompt response to the 90 or so queries thus received over the year. Also, members of RegTP were present at international showcase events such as CeBIT in Hanover and the EMC Trade Fair in Augsburg to supply information and answer visitors' questions.

The experience gained from applying the R&TTE Directive has been assimilated within the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM), set up by the European Commission. Concrete proposals for making the R&TTE Directive more precise were also submitted. RegTP provided input for the Administrative Cooperation Group (ADCO), set up with the Commission's support to ensure consistent application and interpretation of the Directive throughout the Community.

Television in the 21st Century

Work on digital television (DVB) made further steady progress in 2001. An outward sign of this was the IFA¹² in Berlin, at which prestigious national and international institutions, programme providers, network operators and equipment manufacturers presented the latest trends, projects and products in breathtaking fashion. Notwithstanding this visible progress, technical problems persist, particularly in the cable networks. These will need to be resolved jointly by all concerned (programme/service providers and network operators) if fair and effective competition is to unfold. Essential, for instance, is agreement on common standards (eg multimedia home platform, or MHP), and the matter of terminal equipment (eg Multicrypt as the decrypting principle). RegTP is proactive in this market-driven process within the confines of its technological neutrality and prescribed field of activity.

From Distribution to Broadband Network

In conjunction with the advent of digital television and interactive applications the distribution networks typically used for TV are now having return channel capability systematically installed. New foreign investors and network operators have gained a foothold in the German market, and customers of selected cable networks are now being offered Internet access and telephone service via cable, besides their TV and radio programmes. Further cable networks are being readied. It is RegTP's job to make sure that this is carried out in accordance with the legislation in place in Germany – most notably the TKG, the EMC Act, the R&TTE Act and the Frequency Band Allocation Ordinance. As new IP-based technologies will spawn a whole new range of broadcasting and telecoms services via the cable medium, it will be essential to address compatibility and interconnection issues in the international standardisation activities, in order that proper account is taken of German and European concerns. Participating in the work of the international bodies, RegTP has been doing this in conjunction with the manufacturing industry and network operators.

One of RegTP's activities that deserves special mention is ensuring electromagnetic compatibility between radio and cable systems and monitoring compliance with the electromagnetic radiation disturbance limits set out in the Frequency Band Allocation Ordinance. Only when these limits are kept is it possible for frequencies to be used in cable networks, and observance largely guarantees that the radiocommunication services, especially safety of life services, can operate free of interference.

Whereas RegTP in conjunction with the radio and cable operators has made extensive measurements for frequencies above 30 MHz in the midband, superband and extended superband channels, it has just initiated measuring in the bands

¹² International Consumer Electronics Fair

between 5 MHz and 30 MHz. This was made necessary by the intended use of the bands for return channels and because little in the way of measurements has been done in the cable networks to date. Yet the measurements are a vital part of a complex compatibility study. The aim is to identify how radio receivers in the safety services (authorities and organisations concerned with public safety, aeronautical radio) behave when exposed to interfering frequencies in these bands and what radiation can be expected given the wanted signal levels that cable requires. The measurements are being carried out to begin with in coaxial, and then in other networks. First results are due in the first half of 2002.

Broadcasting Transmitters at the Heart of Terrestrial Networks

Standardisation and the creation of harmonised standards for (analog) broadcasting transmitters was long relegated to the sidelines in Europe. However, as digital (eg DVB-T) technology superseded analog, it became more necessary than ever to harmonise at European level, by providing proper standards. Two ETSI technical subgroups therefore took on this task. WG EMC¹³ of TC ERM¹⁴ prepared two draft EMC standards for all types of sound and vision broadcast transmitter, set for completion in the first half of 2002. TG17¹⁵ of TC ERM prepared the first EN drafts on the technical parameters for sound and vision transmitters (AM and FM); work is proceeding apace on draft standards for DAB, DRM and analog/digital TV transmitters. These standards will be adopted over the course of 2002. RegTP is actively involved in both groups under its technical telecoms regulation remit.

Software Defined Radio

Good progress is being made in developing software defined radio (SDR), whose introduction could have far-reaching implications for regulatory principles and wireless technologies. SDR stations have the potential to change the way users communicate with each other over traditional services, and to promote efficient use of the radio spectrum. Currently under discussion is SDR's impact on a number of functions of frequency management and regulation – on frequency allocation and assignment, on placing equipment on the market, and on licensing, for instance. A TCAM subcommittee under German chairmanship was set up to look into the application of the R&TTE Directive in relation to SDR stations. Its terms of reference are to propose timely measures on the introduction of SDR, taking account of the legal framework in place in Europe.

Ultra Wideband Systems

Understood by Ultra Wideband (UWB) systems are new types of wireless system using either an emission bandwidth of at least 1.5 GHz, or bandwidth at least 25 percent relative to the centre frequency of the signal. Transmitting the non-sinusoidal signal at low power (less than 0.5 milliwatts) across a wide swathe of spectrum gives a power flux density equivalent to noise or less. The emission is quasi continuous and consists of pulses with an accuracy of nanoseconds or less or spread continuous signals, mostly with carrier suppression. When frequencies are assigned it must be borne in mind that UWB applications are conceivable in large numbers and that the emissions have a high duty cycle. UWB systems are suited for

¹³ Working Group (WG) Electromagnetic Compatibility

¹⁴ Technical Committee (TC) EMC and Radio Spectrum Matters (ERM)

¹⁵ Task Group 17 (Standards for broadcast and ancillary communications equipment)

two main types of application: wireless communications, for example short range devices (SRDs) such as the computer mouse, printers, headphones and loudspeakers, detection and tracking devices and even wireless personal area networks and local area networks; and radar, for example, public safety, aeronautical and collision-avoidance systems. The state of the art has centre frequencies around 3.5 GHz but also at 24 GHz.

UWB systems offer greater protection against unauthorised listening in and have greater immunity to signals and multipath propagation. UWB devices for radar applications have high precision and can also penetrate lossy material (underground, walls). Their high bandwidth requirements mean that, with current spectrum planning, some of the emission will always fall into the bands designated for other usages. Examples of this are the so-called passive radio astronomy and earth exploration-satellite services, protected by ITU-R RA.769-1 and S5.340 (all emissions prohibited in these bands).

As yet, no regulatory provisions permitting the use of UWB systems are in place anywhere in the world. RegTP is closely involved in the studies in progress within ITU WP 8A and CEPT (SE), particularly as regards assessing the interference potential of UWB systems in relation to already approved systems, in order to identify meaningful regulatory procedures for the clearance of UWB systems. Further, RegTP is assisting ETSI ERM in drawing up a Technical Report that will underpin ETSI's recommendations to CEPT.

UMTS/IMT-2000 and Beyond

ITU-R is continuing its work on IMT-2000, in cooperation with the two 3G Partnership Projects (ETSI's 3GPP and the Third Generation Partnership Project 2 (3GPP2)), and on the new generation systems. Thanks to RegTP's active participation, ITU-R has now finally approved the Draft New Recommendation on the global circulation of IMT-2000 terminals. This creates the official framework under which users whose device is covered by the Recommendation can carry their terminal from one country to another and use them subject to network availability. Work on the draft 3GPP standards is running to schedule. Release 5, with its focus on interworking between the Internet and IMT-2000 and beyond, is in progress. ETSI is currently drawing up the harmonised IMT-2000 standards manufacturers will need for conformity assessment of their products under the R&TTE Directive. Completion of these is imminent. Thus the prescribed standards will be available when IMT-2000 is formally launched in Europe in 2002.

Metering and Billing

With the advent of competition in the telecoms market, customers have come to expect better and cheaper services. And they 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 customers have no means of determining whether or not providers have established the charges in accordance with the contractual arrangements, provision is made in Section 5 of the Telecommunications Customer Protection Ordinance (TKV) to ensure billing accuracy, so that the customer can be confident that 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 submit proof of the guaranteed accuracy of their metering and billing systems, notwithstanding the service provided, the bandwidth and the switching and transmission technology used.

The technical requirements for metering and billing systems cover procedures and checks for establishing and processing call records. The minimum requirements serving the quality assurance bodies and RegTP as the assessment basis are set out in Part 3 of Order 168/1999, published in RegTP's Official Gazette 23/99 of 22 December 1999. The requirements for the quality assurance bodies, the scope of quality assurance and the procedural rules for outsourced operations were published in Order 18/2000 in Official Gazette 4/00 and Order 6/2001 in Official Gazette 1/01. In 2001, 80 compliance submissions were processed. Numerous enquiries from service providers and the quality assurance bodies were answered, and advice on further action in the event of non-compliance with the requirements was given.

Electronic Signature

Transposition of EU Directive 293/99/EC involved amending the Signatures Act and the Signatures Ordinance. The amended Act came into force on 22 May 2001 and the amended Ordinance on 22 November 2001.

Operation of RegTP's Trust Centre

Since the Signatures Act first came into force in 1997, RegTP, as competent authority, has been carrying out the tasks prescribed therein. Essentially, these tasks remained unchanged after the amendment of the Act and Ordinance in 2001. They include the operation of a root authority and the issue of certificates for the signature keys of the approved certification authorities. RegTP issues and manages qualified certificates for the accredited certification service providers, storing them in its repository for public retrieval and verification at any time.

Accreditation of Certification Service Providers

As a result of the amendment, RegTP no longer licenses certification authorities. Accreditation has taken its place. Under the new, voluntary procedure, the IT, operational, legal and conceptual content (organisational structure; deputisation; separation of roles; infrastructure, etc) of the applicants' security concepts are studied. The security concepts are evaluated and their implementation certified. Operators' reliability and specialist knowledge of IT and legal matters in particular is examined. RegTP issued a total of 15 accreditations in 2001, with one certification service provider offering qualified time stamps only.

Notification of Certification Service

Under the amended Signatures Act, the operation of a certification service need not be subject to ex ante examination by RegTP. Notification, however, is required. RegTP then publishes the names of these certification service providers and acts as a watchdog. In 2001, one such notification was published.

Publications

RegTP published the following information in the Federal Gazette, in line with its reporting requirements set out in the Signatures Ordinance:

- the competent authority's public key for 2001, and the telephone number and website from which certificates issued by RegTP can be retrieved and verified,
- listing of accredited certification service providers,
- further certified technical components and products,
- suitable algorithms and associated parameters for 2001.

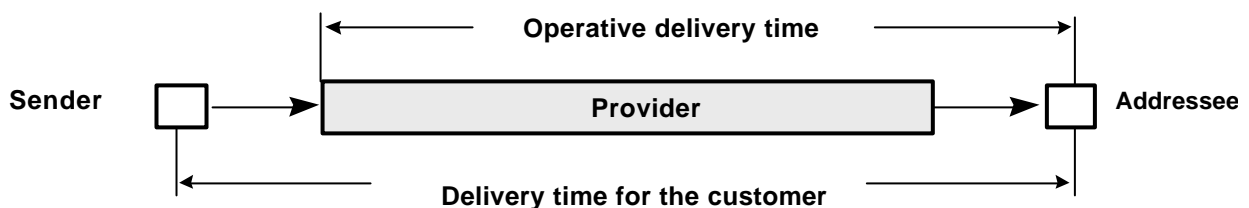
This and further information is available on RegTP's website at www.regtp.de by clicking on "Electronic Signature".

Postal Services Market

Letter Delivery Times

The Postal Universal Services Ordinance (PUDLV) requires, on average over the year, at least 80 percent of domestic letters posted on a working day – excluding large mailings with a minimum of 50 letters per mailing – to be delivered on the first day after posting (D + 1) and 95 percent by the second working day after posting (D + 2).

To this end, RegTP monitors the quality of the letter service by measuring the delivery times achieved by DPAG (as the dominant company with around 98 percent of the market). Measurements are made on a continuous basis, across the country. The results can be used to calculate the delivery times as seen by the customer (from sender to addressee, as set out in the PUDLV), and the operator (from the operating system of the provider [DPAG] to the addressee).



Delivery time for the customer means the time between posting a letter in a post box or at one of the operator's acceptance points at the normal times of business or day, and receipt by the addressee. The time starts as soon as the letter is out of the customer's hands. Measured, then, is the time from end to end, from sender to addressee. Variable closing times do not have any bearing on the results of this method. For the purposes of the PUDLV, only the delivery times from the consumer's point of view are relevant. As it is an ordinance designed to protect the consumer, all that matters is on which day the letter was posted, and not on which working day it was collected.

Delivery Time for the Customer

Period	D + 1 [%] ¹⁾	D + 2 [%] ²⁾
1998 (average)	88.1	98.9
1999 (average)	86.0	98.8
2000 (average)	86.7	99.0
1st quarter 2001	86.0	98.9
2nd quarter 2001	86.5	99.0
3rd quarter 2001	87.3	98.8
4th quarter 2001	86.4	98.5
PUDLV minimum	80.0	95.0

1) Proportion of letters delivered within one working day of posting

2) Proportion of letters delivered within two working days of posting

Parcel Delivery Times

These are also overseen by RegTP. At present, universal service in the parcel market (delivery of addressed parcels not exceeding 20kg in weight) is provided by the market players jointly. Thus RegTP must check whether or not they collectively meet the statutory requirements. Multi-company results must therefore be included in the measurement of delivery times. RegTP will adapt its procedures however to match the change in the legal situation. It has developed a computerised system for sampling that uses tracking and tracing. Addressed parcels weighing not more than 20kg and whose dimensions comply with those of the Universal Postal Convention, and standard parcels are used. The first trials have now begun, and indicate that the targets of the PUDLV can be met.

Effect on Universal Service of the Second Amendment to the Postal Act

The German Bundestag and the Bundesrat have adopted the Second Amendment to the Postal Act. This also entails an amendment to the PUDLV. For universal service, there will be the following changes:

In future, the Postal Act will commit DPAG – and not the licence holders in their totality, as before – to provide universal service as defined by the PUDLV for the period of the statutory exclusive licence (to 31 December 2007). For the consumer, it means that the total number of fixed-location facilities as well as the number of those manned by the company's own staff will remain unchanged until 31 December 2007. Additionally, there must be a fixed facility in all communities of more than 2,000 inhabitants (previously 4,000 inhabitants). However, the distance rule (2,000 metres) will continue to apply only in communities of more than 4,000 inhabitants or in communities with centralised functions. There will also have to be a minimum of one fixed facility per 80 sq km in every district. Not only the collection times themselves but also the time of the next collection will have to be indicated on the letter boxes.

And finally, committing DPAG to provide universal service means that the quality standards for parcel delivery will relate solely to the performance of that company.

Letter Prices and Comparative Price Levels

The prices charged by DPAG as of 31 December 2001 for the main products within the scope of its exclusive licence were as follows:

Postcard		DM 1.00
Standard letter	≤ 20g	DM 1.10
Compact letter	≤ 50g	DM 2.20
Large letter	< 200g	DM 3.00
Maxi letter	< 200g	DM 4.40

The price level obtained (prices weighted by volume) is thus DM 1.58.

$$\text{Price level} = P_1 \frac{m_1}{M} + P_2 \frac{m_2}{M} + \dots + P_n \frac{m_n}{M}$$

where m_1, m_2, \dots, m_n volume of products / services
 M total volume ($M = m_1 + m_2 \dots + m_n$)
 P_1, P_2, \dots, P_n prices for products / services

Taken is the volume of products sold and fully paid for in Germany. The price level for 2001 in itself says very little; it only becomes meaningful over time, when it can be compared with the price levels of other companies or by international standards. Comparing year-on-year prices in Germany provides no information, as prices have not changed since September 1997. Nor can a comparison be made with the prices charged by other companies in Germany, since DPAG's restricted statutory monopoly currently prevents others from offering these products.

What is feasible, however, is an international comparison covering various products with different pricing and weight structures (see chart below). It also irons out differences that could distort the comparison if it were restricted to one product only – say a standard letter weighing not more than 20g.

Prices/weights for letters up to 50g

Price/weight structures for letters up to 50g	D [DM]	UK [£]	A [Sch]	GR [Dr]	F [FFf]	USA [\$]	B [Bfr]
Standard letter (up to 20g)	1.10	0.27	7	120	3.00	0.34	17.00
Compact letter (20–50g)	2.20	0.27	8	160	4.50	0.57	32.00
Compact versus standard letter	+ 100%	+ 0%	+ 14%	+ 33%	+ 50%	+ 68%	+ 88%

Procedure:

Several products with a range of price and weight structures were looked at. This offset methodical differences that could distort a comparison of one product only, such as a standard letter not exceeding 20g in weight. Peer countries were the EU countries, Norway, Switzerland, the US, Canada, Australia, New Zealand and Japan. Peer products were those that most closely matched DPAG's products postcard, standard letter, compact letter, large letter and maxi letter. Compared were the fastest delivery times in the ordinary letter service for which – as in Germany – there are no guaranteed, but expected, non-binding, delivery times.

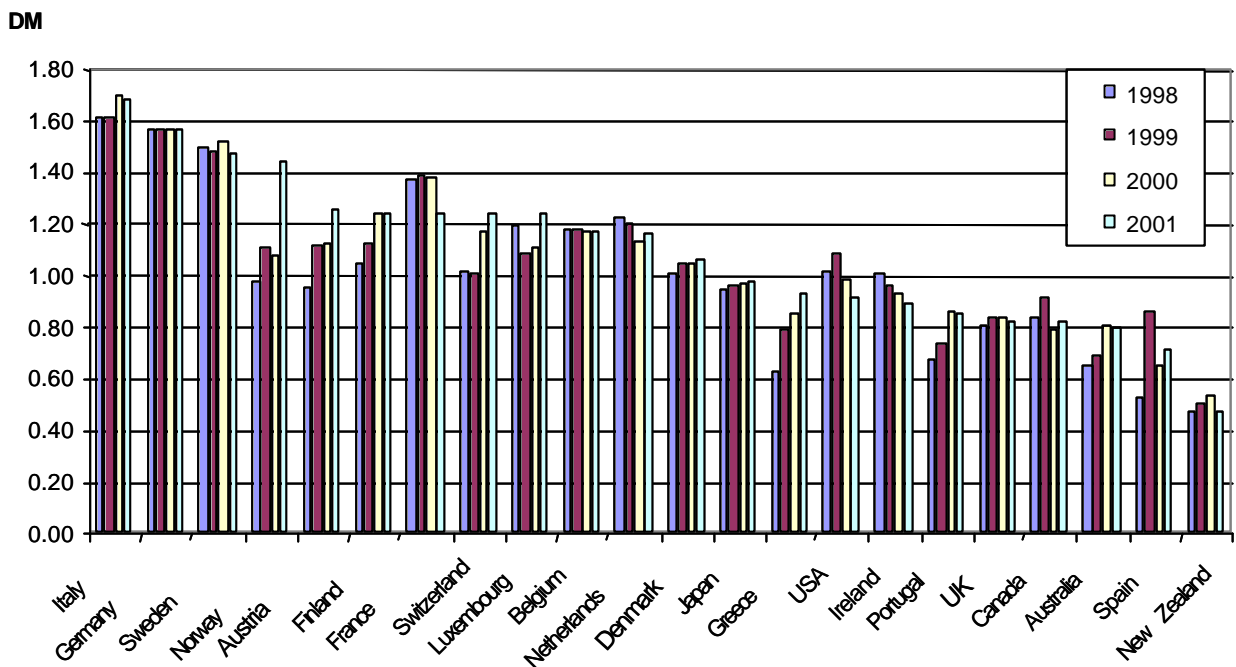
The price for each peer product was established in the national currency. It was then weighted, as before, by the volume of the product sold and paid for in full. The weighted prices, added together, represent the price level in the respective national currency. These price levels were then converted into deutschmarks, using the purchasing power parities (PPPs) calculated by the Federal Statistical Office. The weighted goods and services included in the German basket are representative of the total consumption expenditure (excluding rents and car purchases) of all German households.

The delivery times for the peer products chosen differed ($D + 1$ to $D + 3$). This begged the question of whether, and to what extent, consumers have to pay for faster delivery if all they want is a set of basic services throughout the country, at affordable prices. Initially, faster delivery times impact only on costs. The US Postal Rate Commission has estimated, for instance, that cutting delivery times in the USA from $D + 2$ to $D + 1$ for the zone up to 600 miles (approx 1,000km) would mean higher costs of around 10 percent in the delivery chain as a whole. The extent to which such costs can be passed on to the consumer via the price depends on the intensity of competition; under a monopoly, at any rate, it is possible.

Converting the price levels into deutschmarks using OECD purchasing power parities is not appropriate here, since these parities are established with a US basket which is not representative of Germany. Also, expenditure on letter items is consumption expenditure, ie all the conversion methods based not on consumption expenditure but on costs or wages, distort the result. For the consumer, all that matters is price.

The comparative price levels are shown on the chart overleaf (RegTP has the detailed input data and results to hand; also the underlying volumes of products paid for in full – figures which are not intended for publication, however).

Price Levels for Letters



Postal Licences

DPAG has a statutory exclusive licence until 31 December 2007. The scope of the licence is detailed in Section 51(1) sentence 1 in conjunction with sentence 2 of the Postal Act. Hence until the end of 2007 providers other than DPAG can supply the following services which, by virtue of their definition in Section 51(1) sentence 2 of the Postal Act, do not come under DPAG's restricted monopoly.

- A** conveying on a profit basis letters weighing between 200 and 1,000 grammes, and/or letters costing more than five times the price payable on 31 December 1997 for corresponding postal items in the lowest weight category;
- B** conveying on a profit basis letters with identical contents and weighing over 50 grammes, with at least 50 letters per mailing;
- C** conveying on a profit basis letters delivered by the sender to a document exchange and collected by the addressee from the same or another exchange operated by the same service provider, with the sender and addressee using the service under a permanent contract;
- D** services distinct from universal services, with special features and of higher quality;

- E** conveying on a profit basis letters collected on the sender's behalf from the sender and taken to the nearest DPAG acceptance point or another within the same community;
- F** conveying on a profit basis letters collected on the addressee's behalf from DPAG PO boxes and delivered to the addressee.

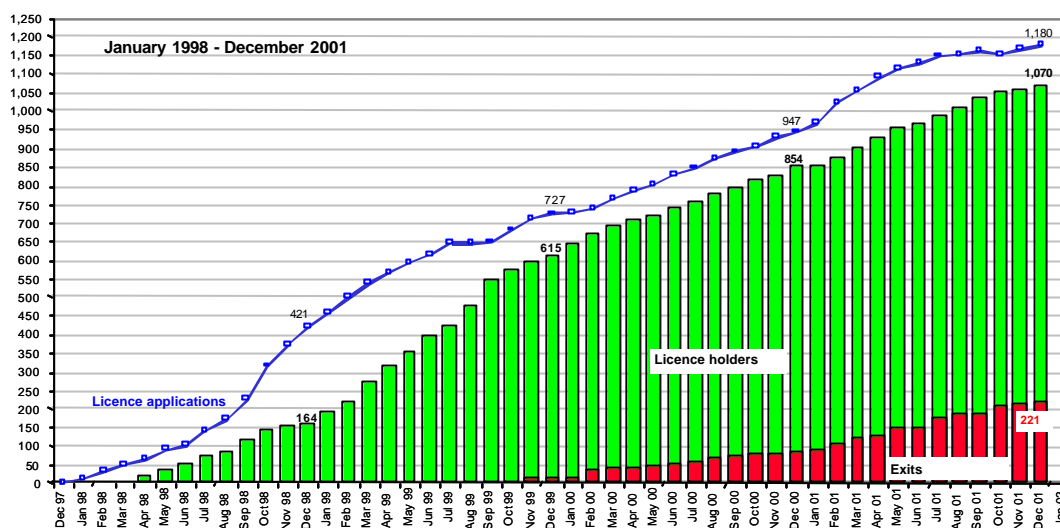
Applications and Licences

	1998	1999	2000	2001	Total
Applications	385	297	211	287	1,180
Licences granted	382	291	208	189	1,070
Licences denied	3	1	0	0	4

Applications / Licence holders / Exits in 2001

	Applications	Licence holders	Exits
01/01	970	859	92
02/01	1,024	877	108
03/01	1,056	906	127
04/01	1,092	932	133
05/01	1,115	957	148
06/01	1,130	970	153
07/01	1,150	989	178
08/01	1,154	1,014	188
09/01	1,162	1,037	189
10/01	1,153	1,056	210
11/01	1,169	1,063	218
12/01	1,180	1,070	221

Licence Applications / Licence Holders / Exits



Breakdown of Licences by Federal State

	Appli- cations	Li- cences	Licence density ²⁾	Licensed activity ¹⁾					
				A	B	C	D	E	F
Baden-Württemberg	83	76	7.2	56	54	23	54	66	62
Bavaria	82	68	5.6	40	36	23	45	59	58
Berlin	33	29	8.6	19	17	11	24	25	25
Brandenburg	65	56	21.5	24	31	17	51	44	45
Bremen	4	4	6.0	4	4	2	3	3	2
Hamburg	33	32	18.8	17	12	1	9	27	30
Hesse	61	59	9.7	38	36	22	45	53	49
Mecklenburg-West. Pomerania	47	45	25.2	22	22	9	43	35	33
Lower Saxony	139	129	16.3	86	81	49	109	107	102
North-Rhine/Westphalia	257	233	12.9	139	142	81	185	190	184
Rhineland-Palatinate	51	48	11.9	32	32	22	41	43	42
Saarland	11	11	10.3	8	9	7	8	9	9
Saxony	135	114	25.6	79	79	32	106	93	87
Saxony-Anhalt	73	68	25.7	48	41	31	63	58	58
Schleswig-Holstein	49	48	17.3	40	39	27	40	41	40
Thuringia	57	50	20.4	24	30	15	47	40	39
Total	1,180	1,070	10.4	676	665	372	873	893	865

¹⁾ See "Postal Licences" for details of services A – F

²⁾ Licence density = number of licence holders per one million inhabitants

Use of Licence Rights

A licence authorises its holder to perform the activities specified in their application, in accordance with the Postal Act and associated ordinances. The licence does not, however, oblige the holder to take up the activity as such; whether or not, and when, holders do so depends entirely on their business plan.

At the end of 2001, 698 of the 1,070 operators licensed were active in the market. 151 out of the remaining 372 were not or no longer operating, 139 holders had surrendered their licences for various reasons, 38 companies had been dissolved, 15 holders had discontinued business and 26 are at present the subject of insolvency proceedings. Three licences were revoked because facts came to light which justified the assumption that the holders did not have the efficiency and reliability necessary to exercise the licence rights. To date, 221 licence holders have exited the market, due to terminating their business or bankruptcy, 134 of these since 1 January 2001.

Exits from the Market

1999	2000				2001				
	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	Total
17	25	14	21	10	40	26	36	32	221

Licence Checks

Licences are granted upon application if the requirements are met ie if there are no grounds for denial at the time the licence is issued. Subsequently, the licence holder must make sure that this continues to be the case. Compliance is regularly monitored by RegTP. If faults are found, the licence holder is given a certain period of time in which to take remedial action. If the holder duly remedies the faults and informs RegTP accordingly, a follow-up check is made three months later to determine whether or not the faults have actually been eliminated for good. If the holder fails to remedy the faults within the given period, proceedings may be instituted, which could ultimately result in all or part of the licence being revoked.

Results of Checks

To date, RegTP has carried out checks after licence grant on 650 providers of licensed postal services. Additional, non-routine, checks were made in more than 30 cases in light of special circumstances. All in all, the regular checks have produced a positive picture. No serious breaches of licence conditions have been found. This was also true in respect of working conditions. More than 95 percent of employees were liable to social insurance contributions at the time of the check. And in general, faults found could be eliminated on site.

The non-routine checks showed a number of providers to be operating without a licence. This was mostly due to unfamiliarity with the legal situation. Meanwhile, the companies concerned have applied for, and been granted, the licence they need. One of the non-routine checks led to revocation of the licence granted in 1998. Administrative fines proceedings were initiated in six cases. In five, fines of between DM 1,000 and DM 30,000 were imposed, while proceedings were discontinued in the sixth.

Situation and Trends in the Postal Services Market

The German postal services market generated revenues of more than DM 44 billion in 2001. Around two thirds of the market – essentially, express and parcel services, but also parts of the letter market – are already open to competition. Slightly less than two thirds of the revenues was generated by DPAG. The remaining third was shared by a number of providers, most notably providers of courier, express and parcel services.

Revenues of around DM 22 billion are forecast for 2001 in the licensed area (conveyance of letters not exceeding 1,000g in weight). DPAG continues to hold around 98 percent of the market, even though certain areas have been opened to competition.

Market Study

RegTP ran a market study in early 2001 among the licence holders, requesting data on their revenues and sales for 2000 (results) and 2001 (forecast or expected figures).

Revenues and Sales from Licensed Services (DPAG's included)

1998		1999		2000		2001 (forecast)	
Revenues	Sales	Revenues	Sales	Revenues	Sales	Revenues	Sales
DM	Volume	DM	Volume	DM	Volume	DM	Volume
19.2bn	15.0bn	19.6bn	15.45bn	21.1bn	16.5bn	22.0bn	17.4bn

The figures for 1998, 1999 und 2000 are actual figures (data from providers); figures for 2001 are forecast figures derived from providers' expected sales and volumes.

Licence Holders' Revenues (excluding DPAG's) [DM million]

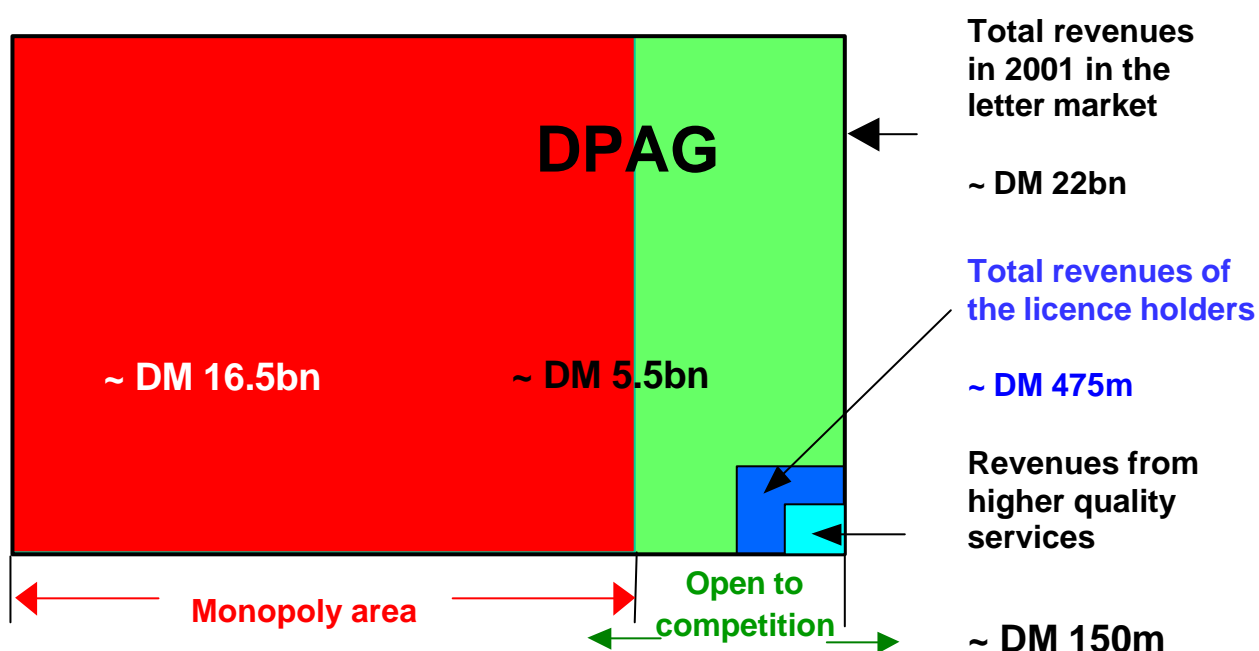
Licensed Services	1998	1999	2000	2001 (Forecast)
A Letters > 200g or > DM 5.50	30.5	60.9	64.4	70
B Letters with identical contents > 50g	19.1	17.2	117.8	175
C Document exchange	0.3	1.6	0.9	1
D Higher quality services	6.7	45.6	90.9	150
E Mailing at DPAG acceptance points	2.5	3.7	7.9	11
F Collection from DPAG PO box facilities	2.5	3.7	5.7	8
Old-type licences (large mailings)	90.3	119.7	52.2	60
Total	151.9	252.4	339.8	475

Figures for 1998, 1999 and 2000 are actual figures; figures for 2001 are based on forecasts.

Breakdown of Revenues by Activity

The licence holders seek to add value to services; the trend is clearly towards the higher quality services of the so-called D licence. In terms of revenue, these services accounted for some 30 percent of the market in 2001. There was no growth in the share of simple transport services (notably old-type¹⁶ and B licences), which remained around 50 percent.

Market for Licensed Postal Services



Market Shares for Licensed Services (including statutory monopoly services)

	1998	1999	2000	2001 (forecast)
Total revenues (DM million)	19,200	19,600	21,126	22,000
Licence holders' revenues (excluding DPAG's) (DM million)	151.9	252.4	339.8	475
Licence holders' market shares (%)	0.8	1.3	1.6	2.2
DPAG's market share (%)	99.2	98.7	98.4	97.8

Revenues from D licences (DM million)	6.7	45.6	90.9	150
D licence holders' share of the market (%)	0.03	0.24	0.43	0.7

¹⁶ Licences for large mailings issued before 1 January 1998

By 2000 – that is, after three years – licence holders had captured only 1.6 percent of the market for the delivery of letters not exceeding 1000g in weight; DPAG still commands 98.4 percent. The revenues generated by the licence holders altogether (DM 340 million) also fell far short in 2000 of DPAG's growth in revenues (> DM 700 million). According to the forecast for 2001 (final figures are not yet available), licence holders' share could increase to 2.2 percent. Thus DPAG would still have 97.8 percent of the market, albeit a market whose volume had meanwhile grown by 14 percent.

Shares in the Fully Liberalised Letter Market

The delivery of letters weighing 200g and over or costing more than DM 5.50 and the delivery of letter items with identical contents and weighing over 50g (minimum of 50 items per mailing) are fully liberalised services that can be provided by licence holders without any further requirements; in particular, added value is not stipulated.

	1998	1999	2000	2001 (forecast)
Total revenues (DM million)	~ 4,100	4,300	4,500	4,725
Licence holders' revenues (excluding DPAG's) (DM million)	140	198	234	305
Licence holders' share (%)	3.4	4.6	5.2	6.5
DPAG's share (%)	96.4	95.4	94.8	93.5

By 2000 – that is, after three years – the licence holders held only 5.2 percent of the market. This figure could climb to 6.5 percent, however, according to the forecast for 2001. DPAG would then still have 93.5 percent of this fully liberalised segment, the volume of which had grown by 15 percent.

Incidental Services; Access to PO Box Facilities and Changes of Address

To encourage competition in the market for licensed postal services, provision was made in Sections 28 and 29 of the Postal Act for access to the infrastructure of the dominant provider. To prevent anti-competitive behaviour, all such agreements were first to be submitted to RegTP.

Incidental Services

Incidental services within the meaning of Section 28 of the Postal Act are the specific activities within the value chain that are not performed by the competitors themselves. Competitors are entitled to these incidental services from a dominant provider of licensed postal services. RegTP determinations issued in September 2000 allowed both competitors and end customers, for the first time, to hand over mail at DPAG's mail sorting centres (incoming and outgoing processing). The

structure and number of such contracts duly concluded in 2001 and submitted to RegTP are shown in the table below.

Incidental service contracts in 2001					
Total:					
269					
concluded with...					
end customers:			competitors:		
265			4		
...for the delivery of...					
individual letter items:		letter items with identical contents:	individual letter items:		letter items with identical contents:
245		20	3		1
...with mail handover at...					
mail centre (outgoing processing)	mail centre (incoming processing)	mail centre (incoming processing)	mail centre (outgoing processing)	mail centre (incoming processing)	mail centre (incoming processing)
100	145	20	1	2	1

PO Box Facilities

Under Section 29(1) of the Postal Act, a dominant provider of licensed postal services must allow other postal service providers to deliver mail to its PO box facilities, against payment of a fee. DPAG concluded and submitted to RegTP 20 such agreements in 2001 (figures as of 31 December 2001). As regards pricing, five of the contracts were based on RegTP determinations, and the rest on negotiations with DPAG.

Access to Change of Address Information

Section 29(2) in conjunction with subsection (1) of the Postal Act commits a dominant provider of licensed postal services to allow other postal service providers access to its information on changes of address, against payment of a fee. In 2001, 27 contracts were signed for access to change of address information and submitted to RegTP. Of these, 24 were for the transmission of updated addresses at the provider's request ("New for Old" scheme), and three for the automatic transmission of change of address data. The rates payable in eleven of the contracts were based on RegTP rulings and those in the remaining 16 were negotiated with DPAG, without the regulator's intervention.

Legal Proceedings

DPAG continued in the year under review to contest the award of licences to providers of higher quality services. It therefore applied to the administrative courts for rescission of the licences, and also to the civil courts for injunctions to prevent the licensed companies from providing these services. For many of these companies, most of which were startups, the financial risk of legal proceedings posed a threat to their very survival. In the course of the year, however, DPAG scaled back its legal action, as shown in the following.

Administrative Court Proceedings

In originally more than 600 cases, DPAG took action before Cologne administrative court to rescind licences granted for higher quality services. After the court's ruling in 1999 that same-day delivery constituted higher value as defined by Section 51(1) sentence 2 no 4 of the Postal Act, DPAG began in early 2001 withdrawing its complaints against the holders of these licences. Cologne administrative court has already ruled on several test cases, determining that same-day – but not overnight delivery (collection from 17:00 hours and delivery by 12:00 hours the next day) – qualifies as a higher quality service. The court also pronounced in favour of the competitors on 13 November 2001 when it dismissed action by DPAG contesting licence grant to competitors for day-certain delivery. In this, the court endorsed RegTP's view that day-certain delivery had added value as well and thus did not fall under the exclusive licence. It stated that day-certain services could not be regarded as universal services and were likely to be advantageous for the customer whenever timing was crucial to the economic or legal success of a business transaction.

DPAG also brought action before the court in respect of access to its PO box facilities for providers not delivering on the same, but on the next day, contesting the licences of the providers in summary proceedings.

Here, the court ruled in favour of DPAG in light of its position that overnight delivery infringed Section 51 of the Postal Act. However, the higher administrative court in Münster then suspended the appeal proceedings, provisionally ruling in favour of the licence holders.

A decision from the Münster court on RegTP's disputed licence award to providers of services according to Section 51(1) sentence 2 no 4 of the Postal Act has not yet been taken, but is expected in 2002. However, a final decision is only likely after the matter has gone to the Federal Administrative Court, and thus not in the near future.

Civil Court Proceedings

Parallel to the action brought before the administrative courts, DPAG on many occasions instituted civil court proceedings against higher quality service providers. Recourse to the civil courts was gradually discontinued in 2001, however. To current knowledge, there are no more civil proceedings pending in which DPAG has sought injunctions to prevent licence holders from offering services according to Section 51(1) sentence 2 no 4 of the Postal Act.

Ceasing its appeals to the civil courts meant that DPAG had removed the grounds for four proceedings on points of law pending at the Federal Court of Justice. Thus for the time being there will be no decision by the highest court clarifying higher quality services and providing the legal certainty desired by the licence holders.

The case law of the regional and higher regional courts differs. A ruling has not yet been made by either the Federal Court of Justice or the Federal Administrative Court on the services that are to qualify as higher quality and which do not therefore fall under the scope of DPAG's exclusive licence. However, RegTP's interpretation of higher quality is shared by a clear majority of the higher regional courts: five judgments have supported the licence holders as opposed to one against.

Ruling Chambers

Ruling Chamber 2 (Rates Regulation, Rates subject to Approval for Transmission Paths [Licence Class 3] and Voice Telephony [Licence Class 4])

Subject to approval are mainly the prices for leased lines offered by DTAG in the form of analog standard leased lines, digital standard leased lines and digital carrier leased lines, and the prices for long lease VHF sound/TV transmitters and for digital broadcasting in the federal states. This price regulation is designed to protect the end user and to ensure fair and effective competition in the market, as carrier leased lines, in particular, are needed by alternative providers to build out their own networks.

The Chamber handled a total of ten cases in the year under review; four rates regulation procedures for leased lines and six rates regulation procedures for analog and digital broadcasting. Leased line rates regulation, involving complex investigations, was concerned specifically with one procedure for analog standard leased lines and two for digital standard leased lines and digital carrier leased lines, that is to say *Comfort-Service* and express fault repair respectively. The fourth case addressed the price of international carrier leased lines providing access to border repeater stations and submarine cable termination points which, although classed as special network access, closely resemble carrier leased lines. In broadcasting, three price proposals were dealt with for services using analog technology (VHF and TV transmitters, sound and TV circuits) and three for digital audio broadcasting in the states of Saxony-Anhalt, Saxony, Thuringia, Bavaria, Baden-Württemberg and Rhineland-Palatinate.

Decisions on the price proposals were to be taken on the basis of efficient operator costs. A further clear reduction in the price of digital standard leased lines and carrier leased lines was achieved, bringing prices more into line with efficient operator costs. With regard to rates not eligible for approval, the Chamber again used the instrument of part approval, ie approving lower rates than those proposed. This was the case particularly with some of the prices for digital standard leased lines and carrier leased lines.

To assess the prices for digital standard and carrier leased lines the Chamber again used the comparative international leased line price table, the methodology of which had been published in RegTP's Official Gazette following a public consultation, in addition to the cost statements submitted.

Price Cap Regulation

Price Cap in the Telephone Service from 1 January 1998 to 31 December 2001

In 1997 the former Post and Telecommunications Ministry set out the price cap regime applicable to DTAG's telephone call prices from 1 January 1998 onwards, including composition of the baskets, thus providing the benchmarks and secondary provisions for assessing and approving proposed prices for voice telephony. Before the first price cap period ended on 31 December 1999, RegTP had decided that the basket structure would remain unchanged and that in the second price cap period (2000/2001), DTAG's products *BusinessCall 500*, *BusinessCall 700*, *City Plus 600/800* and *Select 5/10* would be added to the business basket and the products *City Plus 600/800* and *Select 5/10* to the residential basket.

The Federal Statistical Office's June 1999 retail price index was up 0.4 percent on the previous year. Consequently, the target by which prices should be cut in the second period was set at 5.6 percent.

The Chamber assumed that the benchmark used to check for prohibited discounts – the interconnect charges plus 25 percent to allow, for instance, for billing and distribution costs and provision for contingent losses – should enable DTAG to cover at least its long run incremental costs (LRICs).

However, the Chamber reserved the right to review this benchmark to take account of any new findings on quantifying distribution costs in particular.

Price Cap Regulation in the Telephone Service from 1 January 2002

In preparation for a ruling on the extent to which regulation of the telephone service from 2002 onwards should be based on the price cap mechanism and on the form this regulation should take, RegTP published a key elements paper "Price Cap Regulation 2002" in its Official Gazette No 10 of 23 May 2001 as Communication 284/2001, seeking comments from interested parties. DTAG had already been informed on 10 July 2001 that the procedure had been officially opened.

Following evaluation of the comments, a proposal was drawn up on the services for inclusion in the basket and on the benchmarks for price cap regulation in 2002 and beyond, and sent to DTAG for comment. The proposed ruling was then published in RegTP's Official Gazette No 20 of 17 October 2001. After the official public hearing had been carried out a final ruling was then made by Chamber 2 on 21 December 2001.

Main Points:

Formation of the Baskets

DTAG's telephone service products were basketed as follows:

- Basket A: Lines
- Basket B: City calls
- Basket C: National long distance calls
- Basket D: International calls

The revenue weightings and prices were established with reference to the standard tariffs. No distinction was made between residential and business customers.

Initial price level and rate of growth in productivity

DTAG's prices as of 31 December 2001 represent the starting level for the price cap applicable as from 1 January 2002.

DTAG's expected rate of growth in productivity was set at an overall 1 percent for each of the price cap periods (X factor). Thus the following X factors were obtained for the respective baskets:

• Basket A (Lines)	X =	– 1%
• Basket B (<i>City</i> calls)	X =	5%
• Basket C (National long distance calls)	X =	2%
• Basket D (International calls)	X =	1%

Notwithstanding DTAG's right to submit price proposals at any time, RegTP must check on 1 January 2002, 1 January 2003 and 1 January 2004 whether or not price changes are required. If so, they must take effect in the first price cap period (2002) by 30 April 2002, and in the second (2003) and third price cap periods (2004) by 31 March of the respective year.

Carrying forward unused scope for price changes:

Scope for change in the price of lines can be carried forward to the next price cap period. Overachieved price cutting targets for call charges can also be carried forward. It is not possible, however, to carry forward unused scope for increasing call charges.

Reference index I – Rate of price increases in the economy overall:

The Federal Statistical Office's retail price index was used as reference index I. Its values are established on 30 June of the year prior to the relevant price cap period.

Period of validity:

The price cap applies from 1 January 2002 until 31 December 2004. This overall period is divided into three separate periods of one year each.

Reference period for weighting:

The reference period for the 2002 price cap runs from 1 July 2000 to 30 June 2001. Accordingly, the following periods are 1 July 2001 to 30 June 2002 for the 2003 price cap and 1 July 2002 to 30 June 2003 for the 2004 price cap.

Conditions:

DTAG was required to report to RegTP twice yearly, on 1 April and 1 October, on trends in revenues and volumes and on average use of the discount tariffs not included in the baskets.

Approval of Rates for Specific Products

XXL

DTAG's XXL service, initially open to ISDN customers only, was approved on 27 April 2000 for trial operation.

The scheme was originally limited to run until 31 December 2000. DTAG was also to report monthly to RegTP on the development of customer figures and calling patterns. The trial was then extended until 30 April 2001.

XXL was subsequently approved for a limited period from 1 May 2001 to 31 October 2001. DTAG was still required to report monthly on customer figures and calling patterns. Another requirement was that DTAG provide an equivalent product for analog customers, for which it must submit a price proposal not later than 10 August 2001.

In connection with the discount issue it had to be borne in mind that *AktivPlus XXL* on the one hand comprised usage-based call charges corresponding in this regard to those of *AktivPlus* (*AktivPlus* component), and on the other, non-usage-based call charges that kicked in on Sundays and public holidays (unmetered component).

The *AktivPlus* component contained no obvious anti-competitive discounts. Examination of the unmetered component looked at whether or not the expected average costs – determined basically by the calling patterns – of providing the conveyance services for the unmetered offer could be covered by the monthly supplement. Calling trends did indicate that the costs of the unmetered calls were covered by the monthly subscription, and so no case could be made for the obvious existence of discounts.

Excluding Preselection in Discount Offers Not Allowed

DTAG submitted three filings to Chamber 2 for lower prices for international calls to the Russian Federation, Ukraine, Belarus and Kazakhstan within the *AktivPlus xxl*, *AktivPlus* and *BusinessCall 300, 500, 550 and 700* products. The prices were approved until 31 March 2002 for *AktivPlus* and until 30 June 2002 for *BusinessCall 300*. Approval of *AktivPlus xxl* and *BusinessCall 300, 500, 550 and 700* was made conditional on DTAG not in future ruling out the possibility, in its general terms and conditions, of customers preselecting another long distance provider during the term of the contract. Competitors' market data showed that excluding preselection could not be offset by call by call, and competitors thus stood to lose a substantial number of customers.

XXL for Analog Lines

When *XXL* was approved, DTAG was required to offer an equivalent to *T-ISDN XXL* for customers with analog lines and to submit a price proposal not later than 10 August 2001. The filing for lower prices for calls to the Russian Federation, Ukraine, Belarus and Kazakhstan as part of the *AktivPlus xxl* product was followed by an equivalent filing for customers with an analog line. For a monthly DM 16.84 net (DM 19.54 gross), certain national and international calls are now specially priced. The reporting requirement on DTAG is still in place for both analog and digital products.

HappyDigits

DTAG submitted a filing for application of its *HappyDigits* product to telephone service charges. Chamber 2 ruled that the discounts be limited to 1 percent for revenues from regulated services. Approval was limited to 31 March 2002, and made conditional on DTAG only offering prizes that did not cost more than the equivalent of the credits submitted.

Electronic Order Management

In response to a filing submitted by DTAG for approval of credits in ordering telephone service products online, the Chamber, after studying the issue closely and evaluating the many comments put forward, determined that the credits represented rate-related components of general terms and conditions. Credits of DM 10.00 including VAT were then approved.

Establishment of Non-Dominance in Specific Markets

Chamber 2 also received four requests from DTAG to establish non-dominance in certain areas of the telephone service market.

Specifically, these were international calls to the US, international business calls to Denmark, international calls to Turkey and business lines and calls in the Berlin area. Comprehensive surveys were made to determine competitiveness in these markets.

1. International Markets

The following picture of the US, the Danish and the Turkish markets was obtained:

There was no market specifically for business calls to Denmark as things stood at present. Such a market would presuppose the existence of special requirements for business customers, different from those of other customer groups, ie residential customers. This was not the case, however.

DTAG still had a share of the market for calls to the US and Denmark that indicated it had – at least – a preeminent position as defined by Section 19 of the Restraints of Competition Act. Yet the shares of the competitors surveyed were spread among a number of companies with the next largest having clearly less than 10 percent.

DTAG was also found to have a substantial share of the market for calls to Turkey. All the same, another company held much of the market with a two-digit percentage share. The rest of the market was split among diverse companies all holding well below 5 percent.

The fact that DTAG already had something like a comparable rival could indicate well-functioning, ie self-sustaining, competition in this area. Thus a simple comparison of market share was not enough. Needed here was a detailed analysis of the underlying trends.

Before a final decision could be taken it was necessary in all these cases to look at the competitive environment as a whole. This included looking at companies' financial strength, their access to procurement and sales markets, their links with other companies and the legal and actual barriers to entry that other companies faced.

Thus Chamber 2 determined that DTAG still had a dominant position as defined by Section 19 of the Restraints of Competition Act in the market for calls to the US and for calls to Denmark and that the rates and rate-related components of the general terms and conditions must remain subject to approval.

In respect of telephone calls from Germany to Turkey the Chamber ruled that DTAG was not dominant in this market and that its prices no longer required approval. The Chamber reserved the right, however, to review its determination after a suitable period. DTAG was required to report to RegTP quarterly until 31 March 2002 on trends in call minutes and on net revenues for switched calls to Turkey.

2. Regional Berlin Market

RegTP determined on 16 January 2002 that DTAG's prices for business calls and lines must continue to be submitted for approval.

Clarification of "Closed User Group"

Following a complaint, Ruling Chamber 2 undertook to define the scope of the term "closed user group" (CUG). It established that the prices for the provision of voice communication to CUG members were not subject to approval under Section 25(1) of the TKG, provided the transport and switching of voice took place between and among the CUG members (internal communication). It also established that prices for the provision of voice communication to CUG members were subject to approval under Section 25(1) of the TKG if the transport and switching of voice took place between and among CUG members and third parties (external communication).

Ruling Chamber 3 (Special Control of Anti-Competitive Practices, Ex Post Telecoms Rates Regulation)

Line Sharing

In December 2000 the European Parliament and the Council issued a Regulation on unbundled access to the local loop (Regulation (EC) No 2887/2000 of 18 December 2000). The Regulation is applicable straightaway. It commits DTAG amongst other things to offer its competitors access to its loops (line sharing). The whether was thus settled, without the service having been provided, however.

In two related decisions in March and May 2001, RegTP determined the how and the when of line sharing. Accordingly, the service was to be offered in non-discriminatory fashion by 30 May 2001. A start-up phase of three months maximum was then possible, before line sharing went live. In technical terms, line sharing means that alternative providers are not given the line for their own exclusive use. Loop lines are divided into a high frequency and a low frequency portion, allowing the latter to be used for voice services and the former for data services (typically for high speed Internet access). Competitors are now also entitled to request just the higher frequencies. The lower frequencies can be used by DTAG for telephone service, for instance. Once the courts had decided that legal action against the regulator's decision would not have suspensory effect, DTAG submitted offers to several companies. But the offer gave grounds for criticism on many counts. After several rounds of negotiations, at least one competitor has signed a contract, but the rates as well as individual terms of the contract are currently undergoing scrutiny in separate procedures.

Resale

In two related determinations in March and May 2001, DTAG was ordered to offer *debitel* AG access network services for resale purposes. The resale of communications services, particularly in this area, is another way of stimulating competition in this as yet undeveloped sector. In the mobile market, this form of service distribution has proved successful. Not without reason have resale obligations been written into the GSM licences and applied to UMTS as well. In the first instance, the determination issued was a request to one of the parties to make an offer by 30 June 2001 and a request to both to come to an agreement, as far as possible without regulatory intervention. At this stage, RegTP deliberately refrained from setting price and other targets so as to give the parties maximum scope. Thus the conditions it did have to set were intended more to reinforce the primary aims of regulation – not to let resale constrain indirect access, for instance.

As in other cases, so too did the Chamber need to use the two-stage procedure set out in Section 33 of the TKG, as DTAG initially failed to react to the request issued in March 2001 under Section 33(2) sentence 2 of the TKG. Thus it was necessary to order DTAG in May 2001 to provide the service in question. Legal action against these rulings endorsed RegTP's stance. Meanwhile, DTAG has submitted an offer.

Carrier Leased Lines Case

In early October 2001, RegTP called on DTAG to modify certain clauses in its carrier leased line service level agreement (SLA). Carrier leased lines are facilities which DTAG makes available to licensed telecoms operators in a number of bandwidth variants. Companies require this facility in particular to build out their own voice and data networks. Admittedly, other companies offer leased circuits that can be used for this purpose, too. Yet in the majority of cases, especially in rural areas, the circuits can only be provided by DTAG. At the heart of the determination is the creation of guaranteed delivery times. There are now to be guaranteed delivery times ranging from eight weeks to a maximum of six months, building on a proposal put forward by DTAG but modified considerably by RegTP. The delivery times will be determined by the technical effort involved in the given case. Detailed examples of the new arrangements are set out. To qualify for inclusion in a particular category, DTAG must give the contracting party a clear set of reasons which must be verified in the event of dispute. There is a comparable arrangement for cases in which it only becomes clear after provisioning has begun that delay will be unavoidable. In resolving the issue, RegTP sought to accommodate legitimate competition concerns but to avoid overregulation at the same time. Thus the determination was limited in the first instance to a few central aspects of the delivery relations. It was not possible by far to comply with all the competitors' demands. Some would have overburdened the proceedings, while others did not appear justified in principle.

T-DSL Case

An ex post rates regulation procedure in spring 2001 initially found no grounds for objection to DTAG's T-DSL prices. The case dealt with the prices for broadband high speed Internet access, suspected of being discriminatory and predatory. Although the T-DSL prices were found to be largely below cost, no action was taken for various reasons. A predatory effect could not be proven. True, the company could finance and push through such a strategy on account of its position in the market. Yet the regulator's main focus was possible barriers to market entry, with a view to competitors being granted non-discriminatory access to the network infrastructure. Thus an important consideration was the ruling on access to the local loop, issued at the same time as the T-DSL price ruling, and the ruling committing DTAG to offer line sharing at the soonest possible opportunity. DTAG did pledge to remove bottlenecks in providing colocation space by the summer and to reduce unduly long delays in providing carrier leased lines by the autumn, yet did neither, so that RegTP on 18 December 2001 began a fresh review of its T-DSL prices.

Ruling Chamber 4 (Special Network Access, including Interconnection) Special Network Access Rates Regulation

In the past year, RegTP had to decide on more than 30 price proposals for special network access. Essentially, the cases were about the price of interconnect services (interconnection links and configuration measures, conveyance services, colocation space) and access to DTAG's local loops.

Price of Interconnect Services

With a view to the introduction of element based charging (EBC), originally planned for 1 June 2001, DTAG on 23 March 2001 submitted a filing for a range of conveyance services. After close consideration, RegTP rejected the filing in its determination of 30 May 2001 as DTAG's cost statements once more failed to meet the requirements. During these proceedings, Münster higher administrative court ruled on 3 May 2001 – as had Cologne administrative court previously – that the rates had not been determined in the prescribed manner and that there were serious concerns in respect of the methodology used for the development and structure at least, of the rates determined in the ruling as they had been established on the basis of a largely hypothetical, optimised-cost network. In light of the court decisions and the competitors' renewed call to delay the introduction of EBC, DTAG on 22 May 2001 filed for approval of distance-based interconnect charges for a further six months to 30 November 2001, after making transitional arrangements with its interconnect partners beforehand. In a temporary order issued on 11 June 2001 and a ruling on 31 August 2001, RegTP approved the prices for the core services termination and origination on condition that price levels were reduced by 5 percent over current levels and there was a resultant fall in the other prices for the period now extended to 30 November 2001. It was established during the decision-making process that DTAG was no longer dominant in the market for Inmarsat calls and that the prices were therefore no longer subject to approval under Section 39 1st alternative of the TKG.

On 3 August 2001 DTAG again filed for approval of its charges. Approval was granted on 12 October 2001 after a close study of the submission. The determination is based on a charging structure consisting of three tariff gradients (local, single transit and double transit).

The following charges are payable from 1 January 2002 for origination and termination services:

	<u>Peak rate</u>	<u>Off-peak rate</u>
	Mon to Fri 09:00 to 18:00 hours	Mon to Fri before 09:00 hours and after 18:00 hours; all day Sat, Sun and national holidays
	€ per minute	€ per minute
Tariff gradient I	0.0065	0.0044
Tariff gradient II	0.0107	0.0071
Tariff gradient III	0.0186	0.0122

These gradients are based on a network interconnection structure made up of two network levels, with 475 local service areas at the lower level and 23 basic service areas at the upper level.

This represents, RegTP believes, a compromise between DTAG and its competitors, one that takes account of DTAG's existing network structures and which provides the basis for efficient operator costs, the yardstick for rates regulation under the TKG.

All legal action brought before Cologne administrative court by DTAG and a number of competing operators to halt the introduction of EBC on 1 January 2002 was unsuccessful.

Prices for Interconnection Links and Associated Services

In view of the approvals due to expire at the end of May 2001, DTAG on 23 March 2001 filed for general approval of the rates for different variants of interconnection links and for the configuration measures. With the exception of just a few individual items, RegTP rejected the filing as the contractual arrangements that DTAG had made with some competitors on these clearly overpriced services could not be used as a basis for the approval procedure on account of the prohibition on discrimination. Cologne court had ordered DTAG to continue to offer the services specified in an interconnect agreement containing the lower prices for interconnection links and configuration measures that had been approved until 30 June 2001, beyond that date. Essentially, the rates that were approved are for bespoke services and for provision of physical colocation.

RegTP approved the remaining rates until 30 November 2001. On 3 August 2001 DTAG submitted a fresh proposal for the period beginning 1 December 2001. In its determination of 12 October 2001, RegTP approved some of these prices.

Rates for Colocation Space

The physical colocation form of interconnection requires the lease of colocation space from DTAG. The prices for this service were approved. In the absence of sufficiently detailed cost statements, RegTP referred as a comparative guide to the rents for office space (RDM¹⁷ rents, good rental value) to determine the price levels achieved using the benchmark of efficient operator costs.

Rates for Local Loop Access

Besides the interconnect charges, the rates for access to DTAG's local loops – the so-called last mile – are important factors in competition in the telecoms sector, in the local access market in particular. These rates required approval again in early 2001, the current rates being due to expire on 31 March. RegTP approved the new rates effective 1 April 2001. In addition to the monthly rental for bundled and unbundled forms of access, the one-off connection and termination charges for which DTAG may bill companies for renting/returning loops, were also approved.

To determine efficient operator costs, RegTP used an analytical cost model for the local loop that it had commissioned the consultancy WIK to develop. A local access network, optimised according to efficiency criteria, was modelled, on the basis of which the investment for a local loop was calculated. The reduction of DM 1.00 in the monthly rental is primarily due to the further development of the model and to the changed values for some of the structural parameters. The lower one-off connection and termination charges were attributable in the main to more efficient order management. The monthly local loop rentals were approved for a period of two years

¹⁷ *Ring Deutscher Makler* – German Association of Real Estate Agents

ending 31 March 2003. As there were a few rates that could not be approved, or could be approved for a short period only, in these two proceedings because DTAG's cost statements were insufficient, DTAG resubmitted its filing for these services. A decision on this renewed filing was taken on 31 August 2001.

Also in 2001, the prices for rental of colocation space for local loop access were approved. Here again – as for colocation space rentals for interconnection purposes – RegTP fell back on a comparative office space rents guide (RDM¹⁸ rents, good rental value).

Interconnection as provided for by Section 37 of the TKG

In 2001, RegTP received 25 requests from competing operators to order interconnection with DTAG's network.

Listed below are the most important cases addressed by RegTP since mid 1999:

- A)** On 23 February 2001 *Talkline* requested interconnection of its ATM network with DTAG's network in order to run broadband connections to and from T-DSL customers via lines at ATM switches. DTAG was to commit to providing lines at its ATM switches and *Talkline* to paying the prices set in a subsequent rates regulation procedure. The connections between the customer and DTAG's first ATM switch were to be covered by the T-DSL charge payable by the customer.

The Chamber concluded that the origination service wanted, the provision of traffic from the T-DSL customer to the ATM level, could only be achieved by a new product, by additional or other network facilities than those used by DTAG at the time of the ruling. *Talkline* had therefore requested RegTP to order a service that was not possible, and accordingly its request was turned down.

- B)** In another case involving *Talkline*, Ruling Chamber 4 ordered DTAG to carry calls from its network to service numbers in the 0137 range (mass call traffic to specific destinations) in *Talkline's* network.

In its determination, RegTP committed DTAG to route successful calls to the competitor's service to a recorded message in its network, to count the number of calls and inform the interconnect partner of the result. Overall, RegTP assessed the originating service *Talkline* wanted as an interconnect service, even as far as the calls were to be "processed" to announcements in DTAG's network. This determination would have allowed alternative providers to compete with DTAG, to date the sole provider of 0137 numbers, at short notice.

- C)** On 1 August 2001 RegTP ruled on a request from *01051 GmbH* to order interconnection with DTAG. The company had asked RegTP in May 2001 to hear its case, after failing to reach agreement with DTAG on an amendment of the terms of its existing contract. The case addressed important aspects of the interconnect relationship between DTAG and competing companies.

¹⁸ Ring Deutscher Makler – German Association of Real Estate Agents

RegTP's determination obliged DTAG to let its competitors bundle telecoms traffic by means of "cascading" interconnection links. DTAG was also required to provide its interconnect partners, upon request, with information they needed for the rollout of their networks and the relevant calculations. RegTP also ordered DTAG to revise its conditions for access to buildings in which physical colocation was provided to competing companies. However, DTAG was not ordered, as *01051 GmbH* had demanded, to provide call by call and preselection – available since early 1998 for long distance calls – at local level, too. From the German point of view, there were still barriers to this in the shape of European regulations and national provisions in the TKG.

- D) In mid-July 2001 *MobilCom Multimedia*, winner of a UMTS licence at the auction in summer 2000, filed for an order for interconnection of its nascent UMTS network with DTAG's fixed network. Both companies had negotiated hard on the terms and conditions of interconnection, yet failed to reach agreement on the rates DTAG should pay *MobilCom Multimedia* for terminating calls in its UMTS network. RegTP then issued a determination on 28 September 2001 ordering interconnection from 1 January 2002 onwards – during proceedings, the parties had agreed on the terms and conditions applicable until the end of 2001. However, in light of the recent rulings by the Cologne and Münster courts, RegTP saw itself unable to rule on the contested charges as well.
- E) Against the background of the introduction of EBC, originally scheduled for 1 December 2001 and then for 1 January 2002, several competing companies initiated proceedings in late summer and then again in October and December last year. As it was not possible to rule on the main issue in all the cases before year's end – some of the cases had only been brought before the Chamber in December – temporary interconnect orders were issued. In some cases therefore, a ruling on the main issue will have to be made in the next few weeks.

Ruling Chamber 5 (Postal Rates Regulation and Special Control of Anti-Competitive Practices in the Postal Market)

Under ex post rates regulation, RegTP is making preliminary investigations into DPAG's parcel delivery charges in response to complaints from various companies about alleged below-cost prices in the domestic service. The aim is to establish whether or not there are grounds to initiate proceedings. A precondition for opening a case would be DPAG's dominant position in the parcel delivery market, a market that has been open to competition for some time now. Also, a review of rates that are not subject to approval presupposes that RegTP has become aware of facts justifying the assumption that DPAG's contested parcel prices contain anti-competitive discounts affecting the opportunities of other companies in the market. It has been established that DPAG has a dominant position in the parcel delivery market.

The plaintiffs also cited DPAG's overpriced parcel deliveries to other countries. The outcome of preliminary investigations here was that the preconditions for opening a case against DPAG on grounds of price level abuse were not currently given. Most notably, a comparison of prices showed DPAG's prices for this service to be within the range generally found in the market.

In response to a number of complaints, the Chamber also made preliminary investigations with a view to possible price level abuse into DPAG's increased prices for cardboard tube package delivery. It was not necessary to initiate formal proceedings, however, DPAG shortly afterwards declaring its intention to withdraw its higher prices indefinitely.

Another – special – sort of rates regulation is the procedure set out in Section 31(2) of the Postal Act. Under certain circumstances RegTP must, upon application, fix the terms of a contract concerning incidental services according to Section 28 of the Postal Act or concerning access to PO box facilities according to Section 29 of the Postal Act between a dominant provider and its competitors if an agreement has not come about three months after the contract was first requested. Here, RegTP has a duty to set prices, since the protagonists typically cannot agree on the charges payable for the service. A recent court ruling affirmed this view.

Eleven requests were received and one ruling issued in 2001 on access to PO box facilities and nine requests and six rulings on access to change of address information.

In conjunction with the Federal Cartel Office, RegTP ordered that a maximum of DM 0.17 be payable per letter placed in a PO box by DPAG staff. This amount was established as a result of a comparison, made necessary by the absence of sufficient cost statements from DPAG, with the unaddressed mail product. The administrative court in Cologne ruled that the access ordered by RegTP was lawful, but disputed the suitability of the service chosen for comparison.

In December 2001 DPAG for the first time submitted a price proposal for access to PO box facilities. A ruling is expected in early 2002.

In respect of agreements on access to change of address information RegTP, again in agreement with the Cartel Office, considered reasonable a maximum of DM 0.23 per updated address under the "New for Old" scheme and a maximum of DM 5.54 for electronically processing and transmitting a set of change of address data, irrespective of the number of changed addresses it contains. Citing data protection concerns, DPAG initially did not implement the rulings, especially those on transmitting change of address data. However, following a statement in late 2000 from the Federal Commissioner for Data Protection stressing that he had no objections to this kind of transmission, DPAG in 2001 began implementing access, although still contesting the terms and cost of access. Provision of change of address data will ultimately reduce the number of letters wrongly delivered by the competitors. Meanwhile, DPAG has presented a further option known as the black box procedure. Under this procedure, redirection data for entire regions is transmitted, encrypted, to competitors and provided in decrypted form, if required. DPAG describes this procedure as more user-friendly and secure than the previous ones. It is expected to submit a price proposal for this new facility shortly.

The Chamber heard six cases concerned with access to DPAG's incidental services. Following its initial rulings in 2000 the Chamber in 2001, in response to a request from a DPAG customer, again ordered and concretised access to these services for competitors.

Under the heading of access to incidental services, DPAG must also offer separate, meaningful, parts of the letter delivery value chain that proactive mailers can integrate to complete the chain. One such meaningful part would be letter delivery by DPAG from each of its 83 mail sorting centres. Mail could be deposited at the centre for outward processing, that is to say the centre closer to the sender, or at the centre for incoming processing, that is the centre closer to the addressee. Thus specific activities hitherto provided by DPAG such as collecting and taking the letters to mail centres and sorting at the outbound centre, would be provided by the self mailers. DPAG's incidental services would then consist in carriage to its mail centres for incoming processing, if appropriate, sorting and transporting to delivery points, sorting into the delivery round order and finally, delivery itself.

When mail is provided to an outbound centre, the incidental service must be priced between 5 percent and 20 percent below the price of DPAG's basic product, depending on the volume deposited. When mail is provided to the incoming centre, the incidental service must be priced 23 percent below the price of the relevant basic product. True, DPAG has not submitted the process and product-related cost data required, despite repeated calls to do so. Thus the rates could only be established by comparative means using proxy values from generally accessible sources. Minimum mailings at outgoing centres are 5,000 pieces and at incoming centres, 500 pieces.

Two further cases addressed the right of E licence holders to incidental services. Any such right was denied. Agreed, the activities remaining for DPAG after competitors have provided their own input such as presorting and depositing mail at the mail centre, do constitute incidental services within the meaning of Section 28(1) of the Postal Act. But an E licence does not let the holder provide the conveyance chain as a whole. Section 51 sentence 2 no 5 of the Postal Act entitles an E licence holder to collect letters from the sender and deposit them at the nearest DPAG acceptance office or at another DPAG acceptance office within the same community. The service following the E licensed service is reserved to DPAG under Section 51 of the Postal Act. This rules out any participation by an E licence holder in the statutorily reserved Section 51 area. However, the offer E licence holders were seeking in using DPAG's incidental services would mean the whole of the delivery chain, right up to the addressee. The obstacle lay not in Section 28, but in Section 51 of the Postal Act. Yet under a contract between the sender and DPAG, an E licence holder could, on the sender's behalf, take mail to an acceptance office as defined by Section 51 sentence 2 no 5 of the Postal Act and have access there, on behalf of the sender, to incidental services.

The Chamber's preliminary investigations also addressed DPAG's practice of returning "found letters". "Found letters" are letters delivered in the first instance by competitors but which then find their way into DPAG's system, having, say, been wrongly delivered and put into DPAG's letter boxes. How these letters should be dealt with was a matter of dispute between DPAG and the competing providers. DPAG used to advise the senders and request them to collect the items. The competitors wanted the mail to be returned to them so that they might complete delivery. To obtain a range of opinions on the matter, the Chamber in February and March 2001 conducted a survey among the licence holders. Its findings showed some aspects of DPAG's practice to be in need of change. Meanwhile, DPAG has declared itself willing to reshape and improve this – free – procedure, effective 1 September 2001, initially for a six-month test phase, as regards the points the

Chamber had faulted. The advice to sender would be dropped completely. The mail items would be collected at regular intervals by the competitors identified as deliverer on the items, and not by the senders. Collection times were to be based on the business hours of the major acceptance offices, and could also be agreed individually. As a result of the discontinued advice to sender, DPAG would no longer collect sender personal data. Thus DPAG will no longer be able to use this data for the purpose of regaining customers.

Ruling Chamber Proceedings in 2001

Ruling Chamber	Rates Regulation		Control of anti-competitive practices		Licensing		Fre-quency award	Inter-connection orders		Others (conciliation, complaints, authorisations)		Total	Number of summons	Disputed proceedings
	T	P	T	P	T	P		T	P*	T	P	T and P	T and P	
1	-	-	-	-	-	-	-	-	-	-	-	-	-	0
2	23	-	-	-	-	-	-	-	-	4	-	27	224	5
3	3	-	8	-	-	-	-	-	-	36	-	47	approx 220	2
4	30	-	-	-	-	-	-	25	-	-	-	55	approx 800**	23
5	-	78	-	7	-	-	-	-	26	-	2	113	0	10
Total	56	78	8	7	-	-	-	25	26	40	2	242	1,244	40

* Access to PO box facilities, change of address data, and incidental services

** Approx 400 to rates regulation and 400 to interconnection proceedings

The Regulatory Authority

Basis and Scope of Activities

RegTP was set up on 1 January 1998 as a structurally separate and independent higher federal authority within the scope of business of the Federal Economics and Technology Ministry.

RegTP's remit includes

- keeping a check on the dominant position of the former monopoly operators DTAG and DPAG,
- creating a level playing field to assist new entrants in the telecoms and postal markets, and
- promoting the advancement of the telecoms and postal markets.

It also has further tasks ensuing from the various laws relevant to its remit, such as the Radio and Telecommunications Terminal Equipment Act, the Amateur Radio Act, the Electromagnetic Compatibility Act, the Electronic Signatures Act and the associated ordinances.

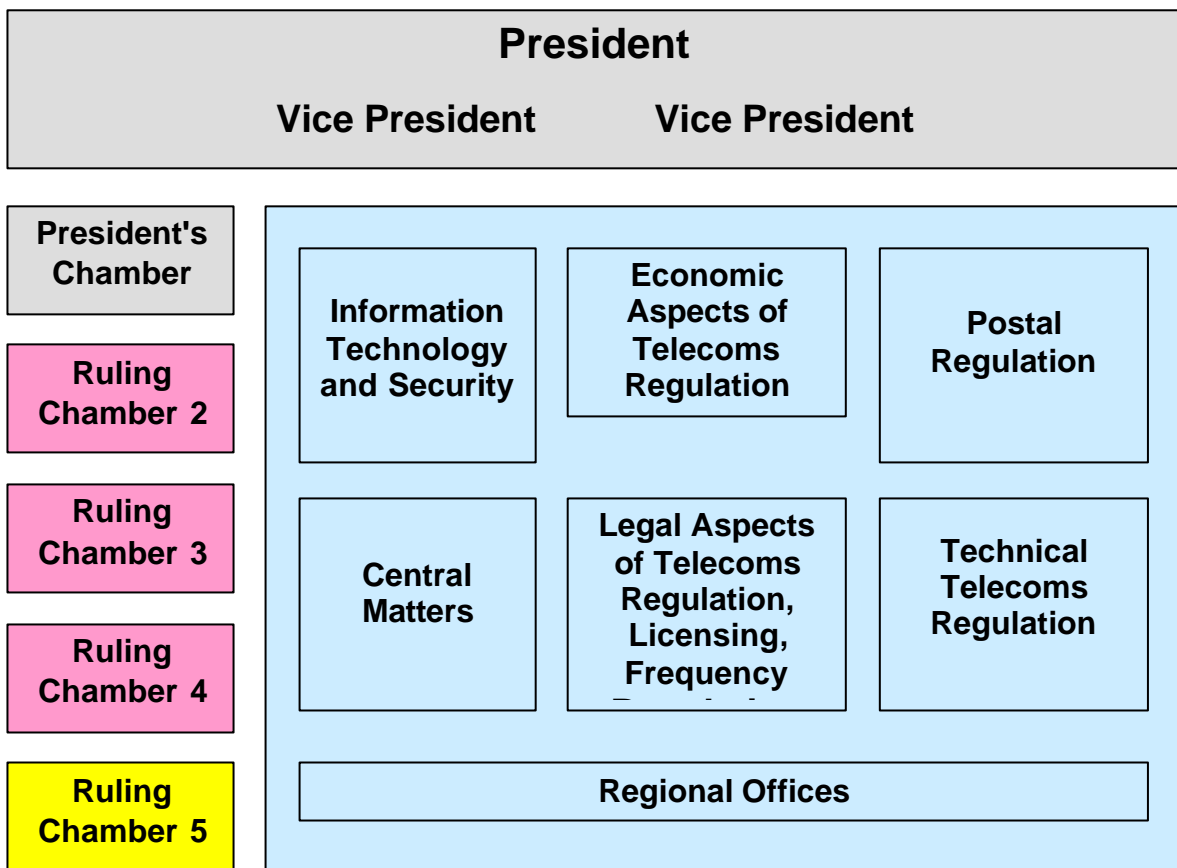
RegTP sees itself as champion of the consumer. Besides regulation of the telecoms and postal markets it has a range of other activities, including the following:

- awarding licences for telecoms and postal services,
- providing input on standardisation issues,
- managing spectrum and numbering resources,
- investigating and resolving radio interference,
- monitoring trends in the markets, and
- advising consumers on new regulations and their implications in the young telecoms and postal markets.

Organisation

RegTP's organisational structure is streamlined and task oriented, enabling it to address its tasks efficiently.

RegTP's Organisational Structure



Key areas in telecoms in which RegTP issues determinations are universal service, rate approval and open network provision and interconnection. In the postal sector, RegTP is mainly concerned with the public service commitment, inviting tenders and approving rates. RegTP's main departments address central administrative and specialist matters such as the economic and legal aspects of regulating and licensing telecoms and postal services, and technical issues of frequency management, standardisation and numbering. To better integrate RegTP's executive tasks, a separate department oversees and coordinates work at the Regional Offices, which act as local points of contact for the consumer and the industry. The Regional Offices provide advice on, for instance, the provisions of the TKG, licensing requirements, frequency assignment and EMC regulations. They issue radio operator licences and transmitter site certificates, hold examinations for flight telephony operator and radio amateur licences, and assign frequencies for mobile, aeronautical, and CB radio equipment. They have state of the art fixed and mobile facilities for round the clock spectrum monitoring, enabling the immediate identification, investigation and resolution of interference and other irregularities. The regional staff also monitor compliance with licence terms and conditions.

Human Resources Management

Proactive HR management is a priority at RegTP. Having the right people in the right place is a vital resource for a modern authority. RegTP's highly interdisciplinary field of activity requires experts from a wide range of backgrounds such as law, economics, engineering, mathematics, information technology, and administration. RegTP has around 2,600 members of staff whose posts are taken from four civil service grades (senior, upper, medium, basic), also applicable to the 230 or so non-civil servants.

In 2001, RegTP again provided places for trainees. In all, 17 young office communication trainees took advantage of this opportunity.

Analysis of staff according to grades:

Senior grade (around 200 members, including some 70 graduate engineers)

These posts are filled by legal experts and economics and business economics graduates with various specialisations. Around 70 are engineers. A small number are graduates in disciplines specific to their particular field of work.

Upper grade (around 850 members, including some 700 engineering and technical specialists)

Most of the non-technical staff are administrative and business economics graduates from higher education colleges. The 700 or so technical staff are mainly communications engineers.

Medium grade (around 1,310 members, including some 530 technical staff)

By far the 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 80 members, including 20 technical staff)

These staff, most of whom have completed apprenticeships, work in a variety of areas such as internal administration and messenger services.

Budget

RegTP's income and expenditure is budgeted for in Section 09, Chapter 0910 of the federal budget. The tables below show RegTP's income and expenditure budget for 2001 and 2002, and performance for 2001:

Income:

Type of income	2001 target DM'000 (€000)	2001 performance DM'000 (€000)	2002 target €000
Administrative income	287,230 (146,858)	- 639,734 (- 327,091)	120,822
including: Fees and contributions payable under the TKG	117,000 (59,821)	- 638,242 (- 326,328)	92,600
Other fees and contributions	168,000 (85,898)	- 2,820 (- 1,442)	27,400
Other administrative income	2,230 (1,139)	1,328 (679)	822
Other income	90 (46)	58 (29)	46
Total income	287,320 (146,904)	- 639,792 (- 327,120)	120,868

The minus figures in the administrative income column are due to the repayment of fees and contributions ordered by the courts in cases concerning the EMC Contributions Ordinance, the Telecommunications Number Fee Ordinance and the Telecommunications Licence Fee Ordinance.

Expenditure:

Type of expenditure	2001 target DM'000 (€000)	2001 performance DM'000 (€000)	2001 performance v target	2002 target €1'000
Staff costs	169,111 (86,465)	172,547 (88,222)	102.3%	86,262
General administrative expenditure and appropriations	67,883 (34,707)	68,809 (35,181)	101.36%	35,922
Investments	45,709 (23,370)	42,920 (21,945)	93.89%	17,763
Total expenditure	282,703 (144,542)	284,276 (145,348)	100.55%	139,947

Additional expenditure as a result of using remaining expenditure from the financial year 2000 under more flexible rules.