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## TOPICS

### On the Report Compiled by the Committee to Promote Research on the Possible Biological Effects of Electromagnetic Fields -- Outline of the Report by the Committee to Promote Research on the Possible Biological Effects of Electromagnetic Fields --

MIC received an executive summary of the committee's report by the Committee to Promote Research on the Possible Biological Effects of Electromagnetic Fields (Chairman: UENO Shogo, Special Guest Professor, Kyushu University) at the 24th and final meeting of the Committee to Promote Research on the Possible Biological Effects of Electromagnetic Fields on March 26, 2007.

Having received this executive summary of the report, the final report of the committee was compiled on April 27, 2007.

The outline of the report is as follows:

#### The objective of setting up the Committee to Promote Research on the Possible Biological Effects of Electromagnetic Fields

The committee was set up in fiscal year 1997 with the objective of promoting comprehensive research related to the evaluation

of the safety of living organisms, so as to build a society that can use radio waves safely and securely.

#### Background to date

Based on the April 1997 report from the Telecommunications Technology Council on "Protection from the Radio Waves on the Human Body" and the priority research topics in the World Health Organization's International EMF Project, 10 broad topics (22 sub-topics) were selected for the Committee to Promote Research on the Possible Biological Effects of Electromagnetic Fields and research was promoted based on animal experiments and epidemiology studies.

#### The research topics and their results

##### (1) Research topics

The ten broadly divided research topics are as follows.

- 1) Short-term effects on people
- 2) Epidemiology research
- 3) Effect in provoking cancer

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- 4) Effect on the dynamic state of the brain's micro-circulation
- 5) Effect on the brain tissue and the brain functions
- 6) Effect on the eyeballs
- 7) Biological effect on cells
- 8) Bioradicals \*1
- 9) Dosimetry \*2
- 10) Evaluation technology

\*1 Bioradicals

Atoms and molecules that are produced in living organisms and which increase the power to draw out electrons from other molecules. They play an important role in maintaining life, such as resisting pathogens.

\*2 Dosimetry

Radio dosimetry refers to amounts of radiation exposure. It quantifies the specific absorption rates and increase in temperature induced into a human body that has been exposed to electromagnetic waves.

## (2) Research results

With regard to the ten topics shown above, the results of the research that was implemented established that, for all of the research results, that there were no undesirable effects on the human body from the emission of radio waves that were below the policy for protection from radio waves.

## Outline of report

With regard to the effects of radio waves on living organisms, the research results shown above as well as research conducted both domestically and overseas were taken into consideration, with the committee coming to the following conclusions.

### (1) Perspectives on topics that have a social interest

The following six topics were

selected as being of social interest.

Taking these six topics into consideration, the viewpoint shown in (2) is presented.

- 1) Effect on children
- 2) Effect of long-term exposure to electromagnetic fields
- 3) Concerning allergies to electromagnetic waves
- 4) Perspectives on preventive criteria
- 5) Concerning policy for protection from radio waves
- 6) Concerning risk communications

### (2) Remarks on the safety of radio waves

- With regard to the effect of radio waves on the human body, various countries around the world, starting with Japan, have accumulated over 50 years of research on the subject. Based on this enormous scientific knowledge, policy for protection from radio waves has been formulated, calculating ample safety rates to the threshold of effect of radio waves on health.

- In recent years, against the background of the rapid penetration of mobile phones, people have become more aware of the effects on health from radio waves but specialized organizations around the world, starting with Japan, have all recognized that there is no firm evidence of adverse effects on health at strengths below the policy for protection from radio waves.

- On the other hand, there have been some reports that there may be undesirable effects on the human body from radio waves below the levels of the policy for protection from radio waves, but these studies have been shown to

be problematic in that the testing conditions were not necessarily appropriate. This type of research result should essentially be handled as safety evaluation data once repeatability has been verified. However, a matter where the distribution of accurate information is not necessarily adequate has become a source of vague unease among the population.

- This committee, while collaborating with the World Health Organization's (WHO) International EMF Project, conducted fair and impartial research in close cooperation between specialists in medicine and biology and engineering specialists who conduct high-accuracy evaluations of radiation. As a result of the ten years' worth of research conducted by this committee, it has been shown that there are no effects on the human both from mobile phone base stations or mobile phones. In addition, with regard to past results reporting that there were effects, the committee obtained results showing that there were no effects through experiments using improved medical, biological and engineering methods.

- Consequently, this committee cannot recognize that there is any firm evidence of effects on health, including nonthermal effects, from radio waves at strengths that do not exceed the policy for protection from radio waves.

### Future Plans

The plan is to continue research on the safety evaluation of radio waves, while working to improve the reliability of scientific data.



A scene from the final meeting of the Committee to Promote Research on the Possible Biological Effects of Electromagnetic Fields (on the left, Chairman UENO Shogo, and on the right, Mr. MORI Kiyoshi, Director-General of the Telecommunications Bureau)

## STATISTICS

# Status of Numbers of Subscribers to Telecommunication Services (As of End of March 2007)

*MIC has compiled the numbers of contracts for fixed-line telecommunications and mobile telecommunications and other items of information that were reported by telecommunications businesses as of the end of March 2007, as mandated by the Rules for Reporting on Telecommunications Business (Posts and Telecommunications Ministry Ordinance No. 46 of 1968).*

An overview of the result is shown in the following.

### 1. Subscription telephones and ISDN

The total number of subscription contracts as of the end of March 2007 for subscription telephones and ISDN was 55.155 million, a 5.0% year-on-year decrease, and this declining trend continues.

### 2. Number of IP phone users

The number of IP phone users as of the end of March 2007 is 14.331 million. This is a 25.1% increase from the same period last year, and this increasing trend continues. The increase in the number of IP phone users with a 0AB to 0AJ prefix is especially remarkable, a 189.8% year-on-year increase.

### 3. Mobile phones and PHS

The number of contracts for mobile phones and PHS as of the end of

March 2007 surpassed the 100 million mark and totaled 116.98 million. This number represents a 5.4% year-on-year increase, and this steady increasing trend continues.

(In millions)

	Subscription telephone + ISDN	IP phone			Mobile phone + PHS
		Total	0AB to 0AJ number portion	050 number portion	
End of March 2007	55.155	14.331	4.126	10.206	101.698
End of March 2006	58.053	11.457	1.424	10.033	96.484
Number changes (Change rate)	- 2.898 (- 5.0%)	2.874 (25.1%)	2.702 (189.8%)	0.173 (1.7%)	5.214 (5.4%)

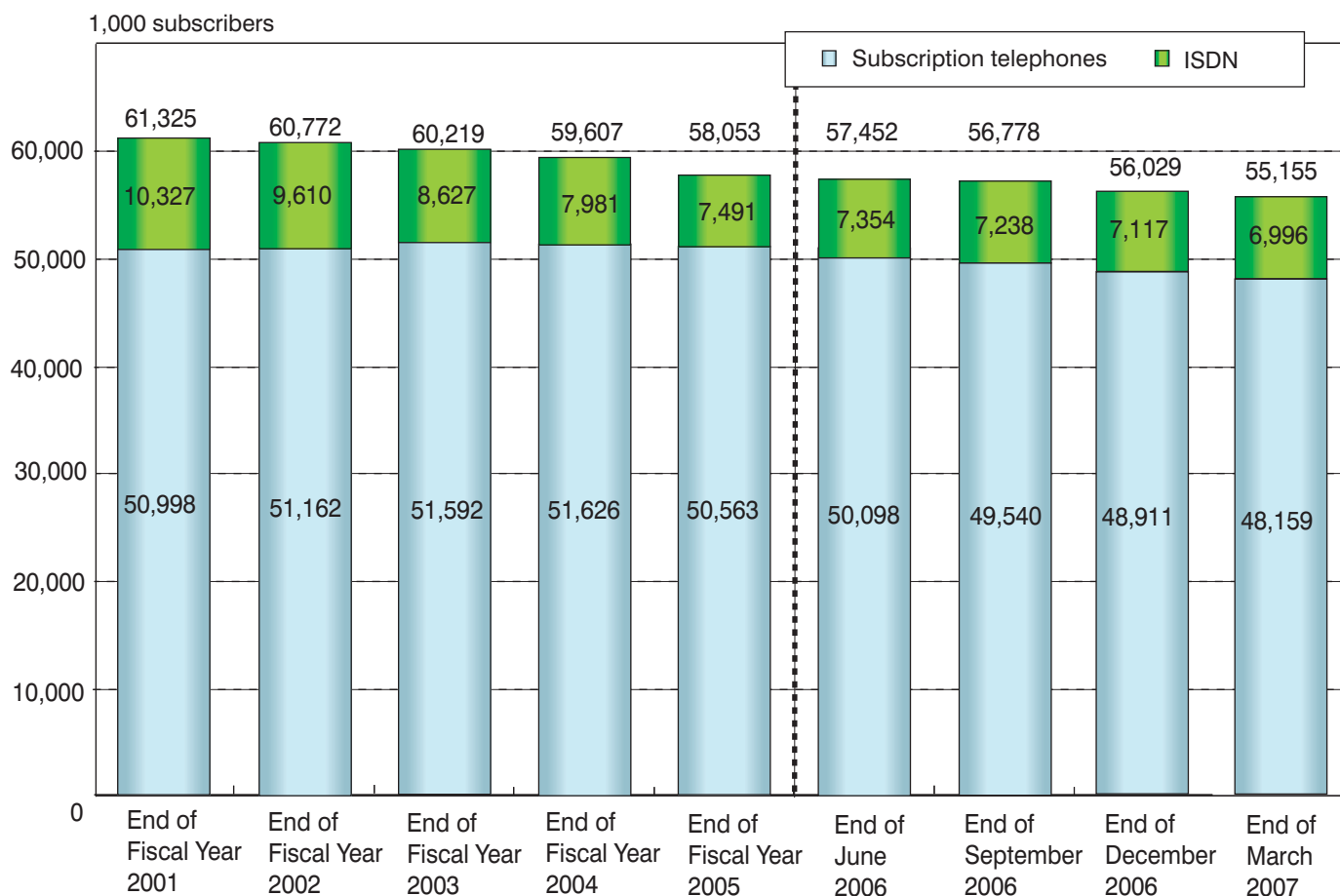
## Fixed Communications

### (1) Subscription telephones and ISDN

The total number of contracts for subscription telephones and ISDN

as of the end of March 2007 was 55.155 million, showing a decrease of approximately 1.6% compared to the previous term (end of December 2006).

In addition, the year-on-year decrease compared to the end of March 2006 was approximately 5.0%.



(Unit: 1,000 subscribers)

Category	End of Fiscal Year 2001	End of Fiscal Year 2002	End of Fiscal Year 2003	End of Fiscal Year 2004	End of Fiscal Year 2005	End of June 2006	End of September 2006	End of December 2006	End of March 2007
Subscription telephones	50,998 (-2.4%)	51,162 (0.3%)	51,592 (0.8%)	51,626 (0.1%)	50,563 (-2.1%)	50,098	49,540 (-3.6%)	48,911 (-4.4%)	48,159 (-4.8%)
(of which)									
Dry copper telephones	—	—	1 (-)	383 (38200%)	2,599 (578.6%)	3,045	3,271 (131.3%)	3,427 (75.0%)	3,638 (40.0%)
CATV telephones	—	—	574 (-)	853 (48.6%)	989 (15.9%)	1,040	1,066 (17.3%)	1,101 (15.7%)	1,120 (13.2%)
ISDN	10,327 (6.5%)	9,610 (-6.9%)	8,627 (-10.2%)	7,981 (-7.5%)	7,491 (-6.1%)	7,354	7,238 (-6.6%)	7,117 (-6.8%)	6,996 (-6.6%)
(of which)									
Dry copper ISDN	—	—	—	23 (-)	149 (547.8%)	182	232 (166.7%)	287 (151.8%)	351 (135.6%)
Total	61,325 (-1.0%)	60,772 (-0.9%)	60,219 (-0.9%)	59,607 (-1.0%)	58,053 (-2.6%)	57,452	56,778 (-4.0%)	56,029 (-4.7%)	55,155 (-5.0%)

Note 1: Dry copper telephones: telephone services that make use of NTT East and West's metal lines

Note 2: The number of contracts shown here does not include the number registered for "My Line."

Note 3: Brackets indicate rates of increase or decrease year on year

**(2) Number of IP phone users**

There were 14.331 million IP phones in use as of the end of March 2007, an increase of 4.2% over the end of the previous term (end of December 2006), and a 25.1% increase over the end of the previous fiscal year (end of March 2006), showing a continuing upward trend.

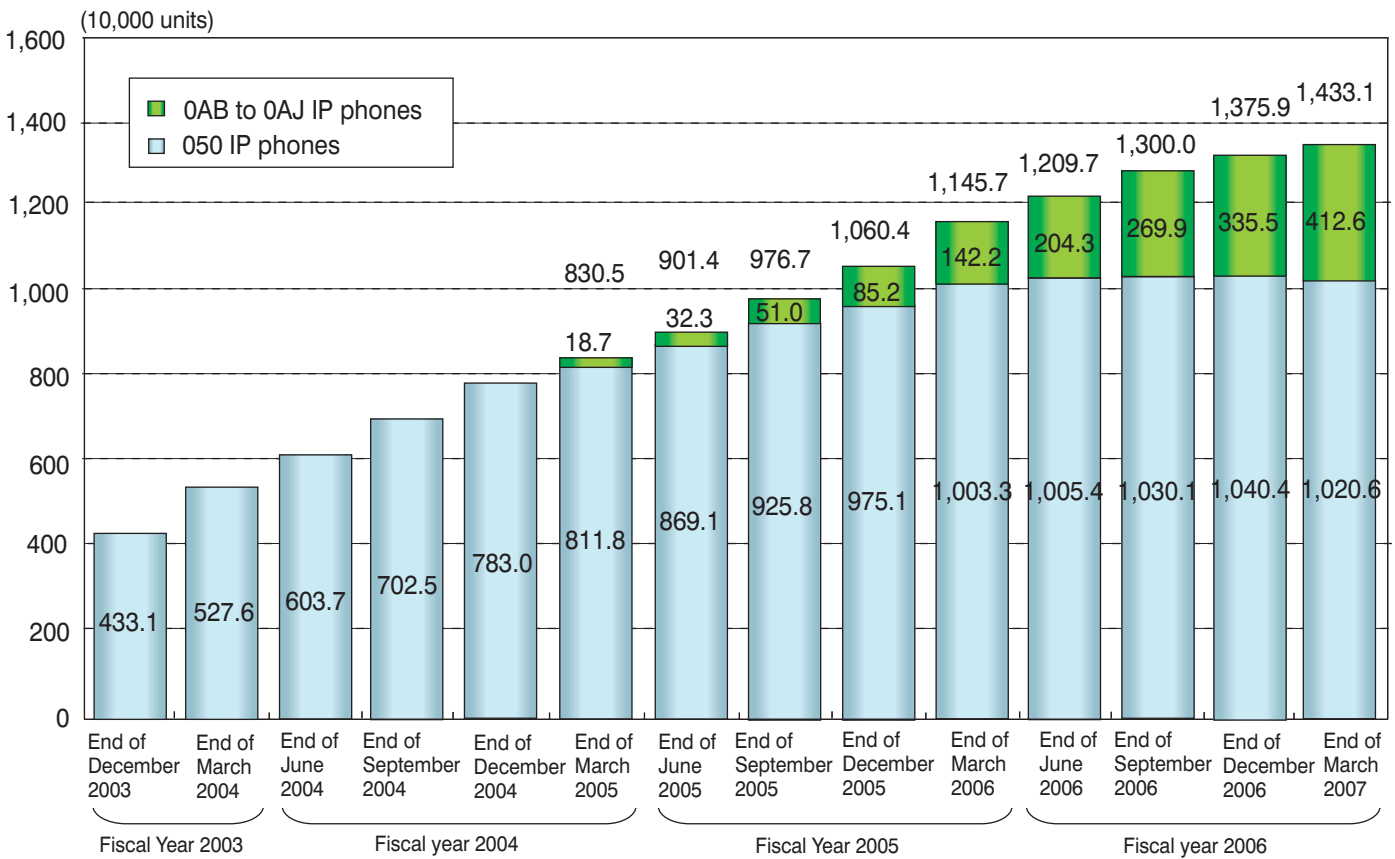
One characteristics of the figures compiled in this survey is the noteworthy increase in usage of

0AB to 0AJ IP phones which showed a 23.0% increase over the end of the previous term (end of December 2006) and a 189.8% increase over the end of the previous fiscal year (end of March 2006).

With regard to 050 IP phones, the figures this time showed the first usage decline since figures were first compiled at the end of December 2003.

Note 1: This shows the figures for the total number of 050 and 0AB to 0AJ phone numbers that were used by final users, and is not an exact figure.

Note 2: Also, with regard to the portion for fiscal year 2003, a survey was conducted based on the Detailed Items for Implementation of Competition Review in the Telecommunications Business Field FY2004.



Unit: 10,000 units

Period	End of December 2003	End of March 2004	End of June 2004	End of September 2004	End of December 2004	End of March 2005	End of June 2005	End of September 2005	End of December 2005	End of March 2006	End of June 2006	End of September 2006	End of December 2006	End of March 2007
User numbers	433.1	527.6	603.7	702.5	783.0	830.5	901.4	976.7	1060.4	1145.7	1209.7	1300.0	1375.9	1433.1
Rate of growth (compared to previous term)	—	21.8%	14.4%	16.4%	11.5%	6.1%	8.5%	8.4%	8.6%	8.0%	5.6%	7.5%	5.8%	4.2%
Rate of growth (Year on year)	—	—	—	—	80.3%	57.4%	49.3%	39.0%	35.4%	37.9%	34.2%	33.1%	29.8%	25.1%

## Mobile Communications

### (1) Mobile phones and PHS

The total number of subscription contracts for mobile phones and PHS at the end of March 2007 topped 100 million at 116.98 million contracts. The growth rate was

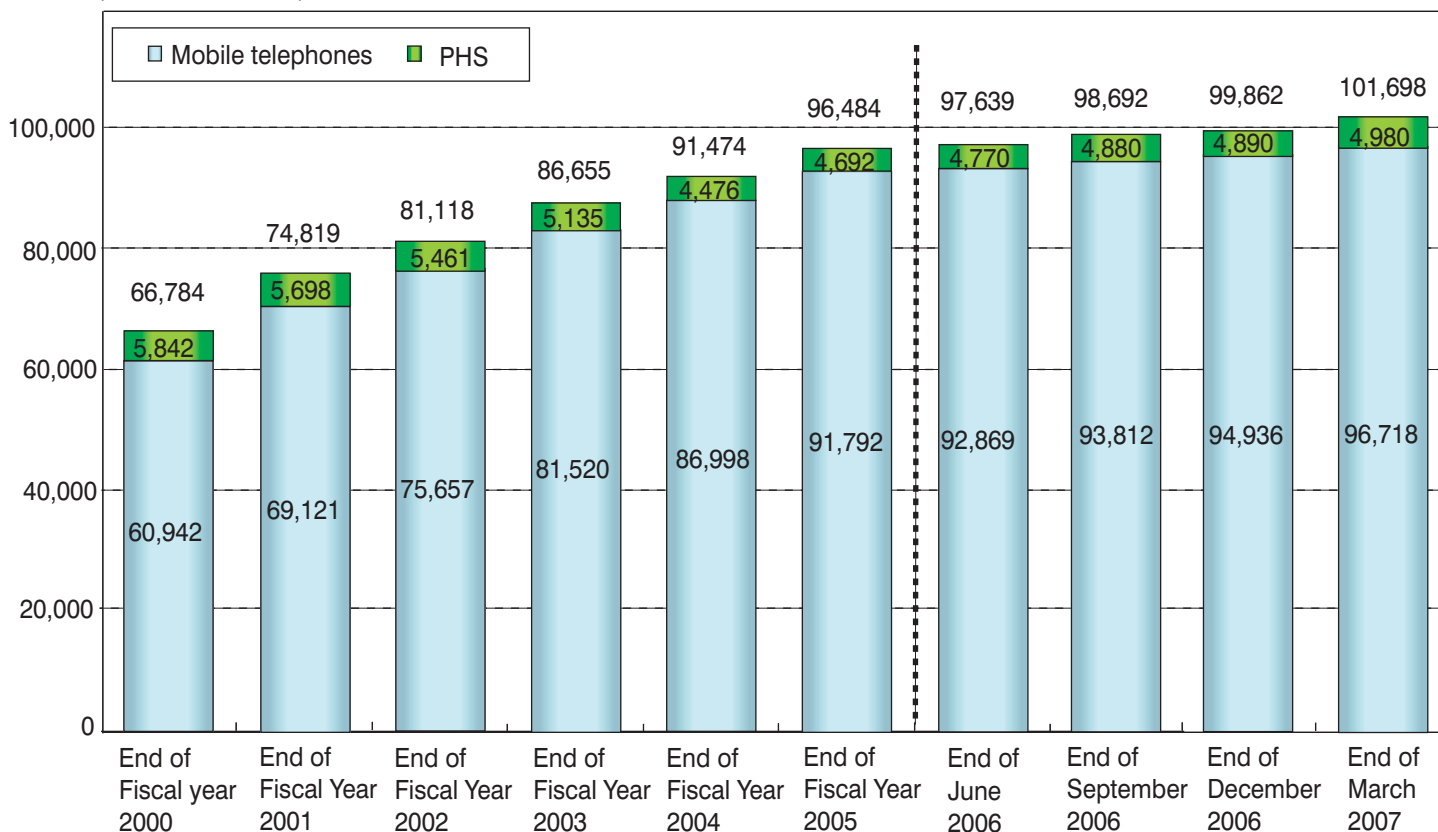
5.4% year on year and penetration among the population at 79.6%.

The subscription contract numbers per category were 96.718 million for mobile phones and 4.980 million for PHS.

In addition, of the subscription

contracts for mobile phones, the proportion of contracts for 3rd generation mobile phones stood at 69.909 million, accounting for 72.3% of the total.

(1,000 subscribers)



(Number of subscribers)

	End of Fiscal year 2000	End of Fiscal Year 2001	End of Fiscal Year 2002	End of Fiscal Year 2003	End of Fiscal Year 2004	End of Fiscal Year 2005	End of June 2006	End of September 2006	End of December 2006	End of March 2007
<b>Total</b>	66,784,374	74,819,158	81,118,324	86,654,962	91,473,940	96,483,732	97,639,195	98,692,003	99,825,964	101,698,165
(Year on year)	(17.5%)	(12.0%)	(8.4%)	(6.8%)	(5.6%)	(5.5%)	(5.5%)	(5.4%)	(5.4%)	(5.4%)
<b>Penetration rate in population</b>	52.5%	58.8%	63.7%	67.9%	71.6%	75.5%	76.4%	77.2%	78.1%	79.6%
(of which)										
<b>Mobile phones</b>	60,942,407	69,121,131	75,656,952	81,519,543	86,997,644	91,791,942	92,869,296	93,812,429	94,935,958	96,717,920
(Year on year)	(19.2%)	(13.4%)	(9.5%)	(7.7%)	(6.7%)	(5.5%)	(5.4%)	(5.3%)	(5.3%)	(5.4%)
<b>Penetration rate in population</b>	48.0%	54.3%	59.4%	63.9%	68.1%	71.8%	72.7%	73.4%	74.3%	75.7%
<b>PHS</b>	5,841,967	5,698,027	5,461,372	5,135,419	4,476,296	4,691,790	4,769,899	4,879,574	4,890,006	4,980,245
(Year on year)	(2.4%)	(-2.5%)	(-4.1%)	(-6.0%)	(-12.8%)	(4.8%)	(6.5%)	(8.8%)	(7.1%)	(6.1%)

Note: The population used to calculate the penetration rate in the population uses the figures for nationwide population count (complete tabulation: 127.767994 million) in the 2005 Population Census announced by Statistics Bureau, MIC in October 2005.

(Reference)

Number of subscribers for IP connection services from mobile terminals (end of March 2007) : 84.371927 million contracts\* (Proportion to total of mobile phone contracts: 87.2%)

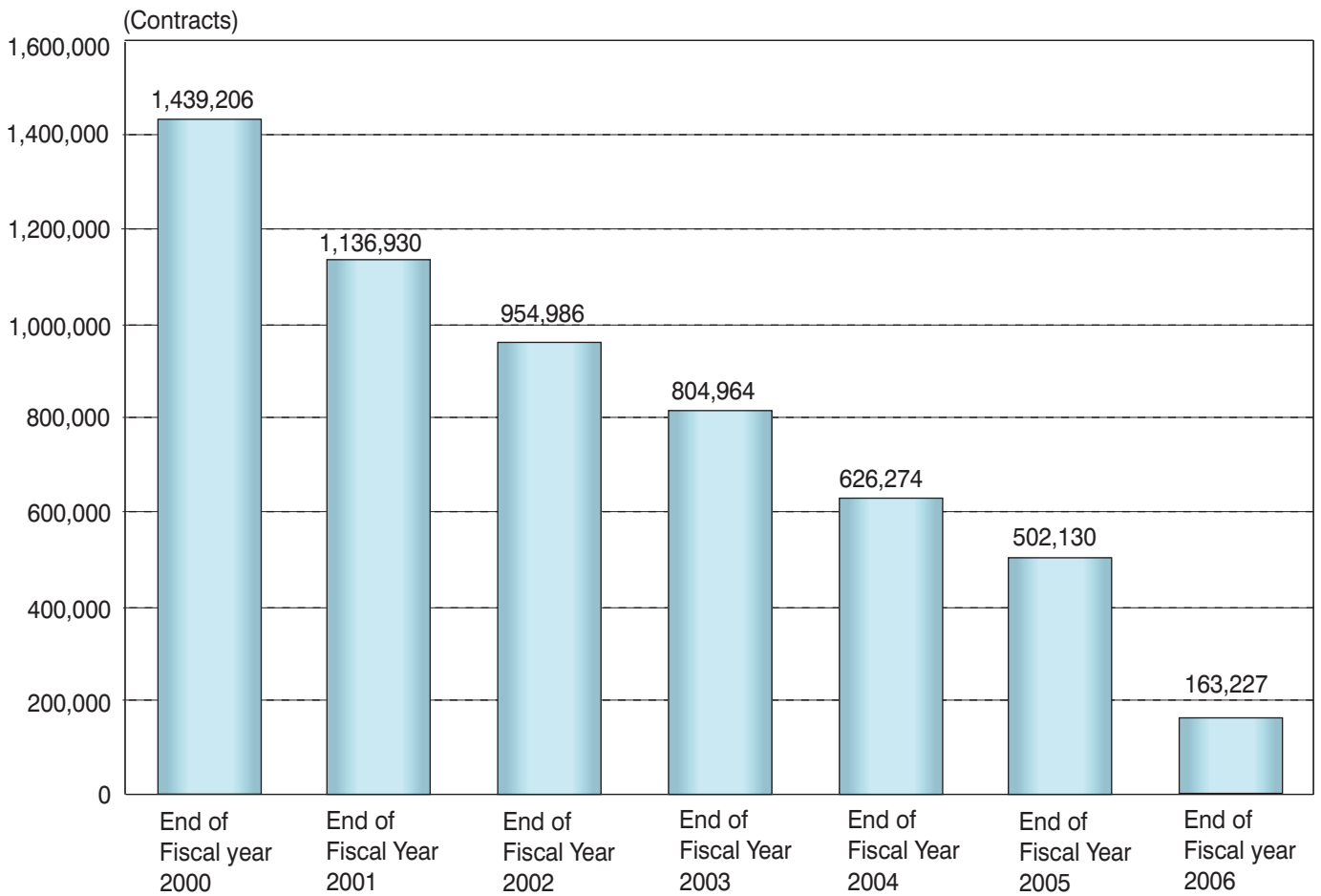
(\* Total of iMode, EZweb and Yahoo! mobile)

**(2) Pocket pagers**

The total number of pocket pager

subscription contracts as of the end of March 2007 stood at 163,000, a

decrease of 63.7% year on year.



(Unit: contracts)

	End of Fiscal year 2000	End of Fiscal Year 2001	End of Fiscal Year 2002	End of Fiscal Year 2003	End of Fiscal Year 2004	End of Fiscal Year 2005	End of Fiscal year 2006	
Number or contracts	1,439,206	1,136,930	954,986	804,964	626,274	502,130	163,227	
Year on year		(-30.5%)	(-21.0%)	(-16.0%)	(-15.7%)	(-22.2%)	(-19.8%)	(-67.5%)

Note: For past figures for the number of contracts for mobile communications, please refer to the MIC Information and Communications Statistics Database (Communications and number of contracts) at: <http://www.johotsusintokei.soumu.go.jp/english/>

(Reference) Trends in subscription contract numbers for telecommunications services

(10,000 contracts)

