MIC International Affairs Department, Telecommunications Bureau

Communications News

Vol. 17 No. 21
February 9, 2007

Biweekly Newsletter of the Ministry of Internal Affairs and Communications (MIC), Japan

ISSN 1349-7987

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STATISTICS

Number of Subscription Contracts to Broadband Services (as of the end of September 2006)

Pursuant to the provisions of the Rules for Reporting on elecommunications Business (Ministerial Ordinance of MPT No. 46 of 1988), MIC has compiled reports on numbers of subscription contracts to broadband services (as of the end of September 2006) submitted by telecommunications carriers. Thus, MIC discloses those data.

Major points

- The number of subscription contracts to FTTH surpassed the 7 million mark (7.15 million). The number of net increase thereof in the second quarter (Q-II : July to September 2006) was 850,000, recording net increases for the eighth successive quarter.
- The number of subscription contracts to broadband services is 25.04 million (as of the end of Q-II), increased by 820,000 over the previous quarter.
- The number of subscription contracts to DSL services decreased by 90,000 to 14.40 million (as of the end of Q-II).

Table Numbers of subscription contracts

	Total	FTTH	DSL	Cable TV	FWA
Q-II : July to September 2006	25,041,143	7,154,550	14,396,034	3,479,605	10,954
Q-I : April to June 2006	24,217,012	6,305,597	14,490,994	3,409,789	10,632
Net increase	824,131	848,953	-94,960	69,816	322

*Number of broadband subscribers: Total of subscribers to FTTH access services, DSL access services, CATV access services, and FWA access services.

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COUNCIL REPORT

Looking Ahead to the Introduction of High-Speed Wireless LAN - Partial Report from the Information and Communications Council

MIC received on December 21 a partial report from the Information and Communications Council (Chair: Mr. SHOYAMA Etsuhiko, Chairman of Hitachi Ltd.) concerning the "Technical Requirements for High-speed Wireless LAN" portion of the "Technical Requirements for 5 GHz Band Wireless Access Systems" (Inquiry No. 2014 of October 29, 2003).

Background

In recent years, the number of new usages for wireless LANs has increased considerably over the traditional use as in-home or office LANs. These include usage as public wireless LAN spots in stations and hotels, and usage as "Last One Mile" subscriber lines into homes to help bridge the digital divide in regional areas.

As far as wireless LAN which is seeing penetration in a number of ways is concerned, there is a strong wish for the rapid introduction of this technology which is by no means inferior to wired broadband such as optical fiber, with transmission speeds of over 100 Mbps, against the background of increased speed for ADSL and developments in FTTH as well as the shift to broadband of wired systems.

Also, according to the report by the Study Group for Wireless Broadband Promotion which was published in December 2005, much can be expected of wireless LAN which can handle the shift to high-speed, as a step to realizing home links for next-generation intelligent home appliances.

In looking ahead to the introduction of high-speed wireless LAN, the partial report from the Information and Communications Council on the "Technical Requirements for High-speed Wireless LAN" was received on December 21 against this background.

With the future realization of high-speed wireless LAN, the development of the ICT related industry, such as the wireless industry, the rapid installation of broadband across the country, and the promotion of measures to address the digital divide can be expected.

Future plans

MIC will take this partial report into consideration and plans to move ahead rapidly with measures for technical standards concerning high-speed wireless LAN.

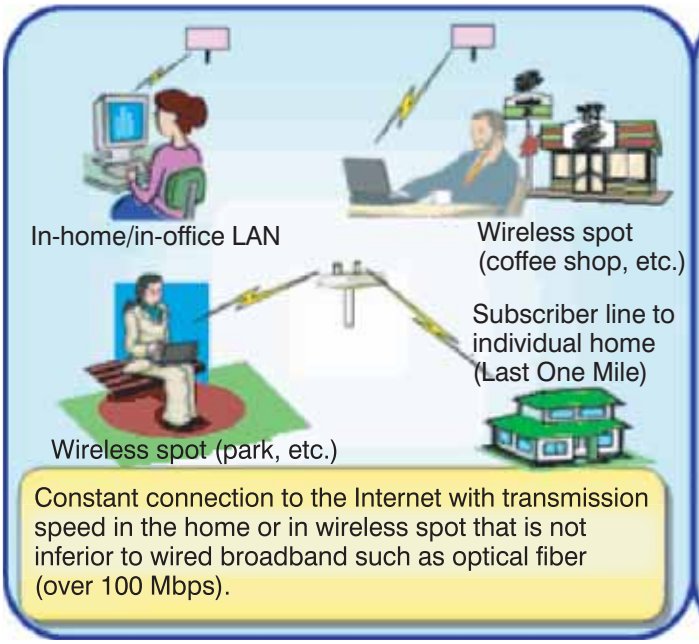
Outline of Report on Technical Requirements for High-speed Wireless LAN

Purpose

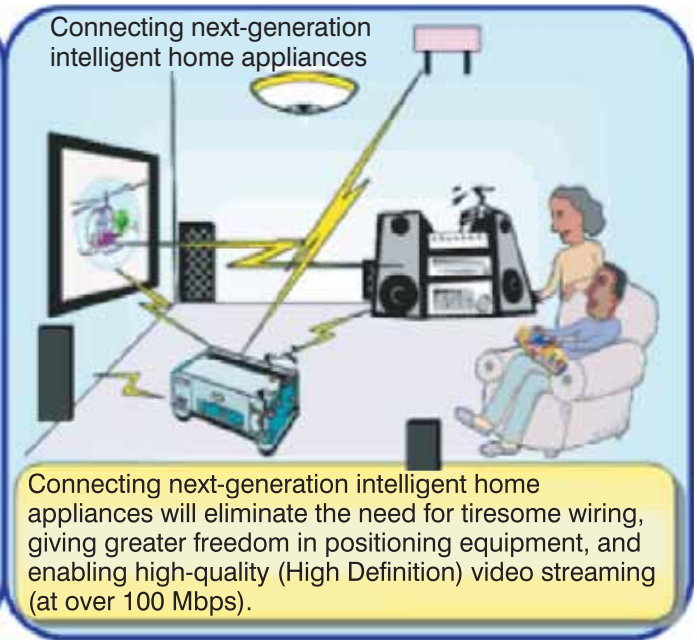
- The realization of high-speed wireless LAN with a transmission speed (over 100 Mbps) that is not inferior to wired broadband such as optical fiber.
- The rapid introduction of high-speed wireless LAN in Japan that takes into consideration international standardization trends (such as IEEE802.11n).
- Responding to the needs of wireless LAN for next-generation intelligent home appliances as investigated by the Study Group for Wireless Broadband Promotion.

Based on the above, investigations were carried out concerning technical requirements for high-speed wireless LAN for the realization of transmission speeds higher than 100 Mbps.

Theoretical usage scenes



Constant connection to the Internet with transmission speed in the home or in wireless spot that is not inferior to wired broadband such as optical fiber (over 100 Mbps).



Connecting next-generation intelligent home appliances will eliminate the need for tiresome wiring, giving greater freedom in positioning equipment, and enabling high-quality (High Definition) video streaming (at over 100 Mbps).

Technical requirements for wireless installation

Frequency range	2.4 GHz	4.9-5.0 GHz	5.03-5.091 GHz	5.15-5.25 GHz	5.25-5.35 GHz	5.47-5.725 GHz
Place of use	Indoor/outdoor			Restricted to indoor		Indoor/outdoor
Channel interval	No regulations	5/10/20 MHz 40 MHz	5/10/20 MHz	20 MHz 40 MHz		
Modulation format 20MHz	No regulations	OFDM format, DS format, single-carrier format				
Modulation format 40MHz	OFDM format		Non-applicable	OFDM format		
Maximum antenna power 20MHz	In the case of the FH format using 2.427 to 2.47075: Less than 3mW/MHz In the case of OFDM/DS formats that do not use the FH format: 10mW/MHz In the case of formats other than those above: 10mW	250 mW and 25 mW/MHz		In the case of OFDM/DS formats: 10 mW/MHz In the case of single carrier format: 10 mW		
Maximum antenna power 40MHz	5 mW/MHz	250 mW and 50 mW/MHz	Non-applicable	5 mW/MHz		
Maximum antenna gain	12.14 dBi	13 dBi		No regulations		
Maximum e.i.r.p. 20MHz	No regulations			10 mW/MHz		50 mW/MHz
Maximum e.i.r.p. 40MHz				5 mW/MHz		25 mW/MHz
Carrier sense 20MHz	No regulations	Compulsory				
Carrier sense 40MHz	Compulsory		Non-applicable	Compulsory		
DFS, TPC (See notes)	Unnecessary			Necessary (parent stations only)		
Connection format	Optional	Parent stations to mobile unit (able to relay)		Optional	Optional (Not possible between stations that are not being operated by a parent station)	

Notes:
DFS (Dynamic Frequency Selection): a function for shared use of frequencies by wireless LAN and radar
TPC (Transmitter Power Control): a function to reduce wireless LAN communications related average antenna power by 3dB

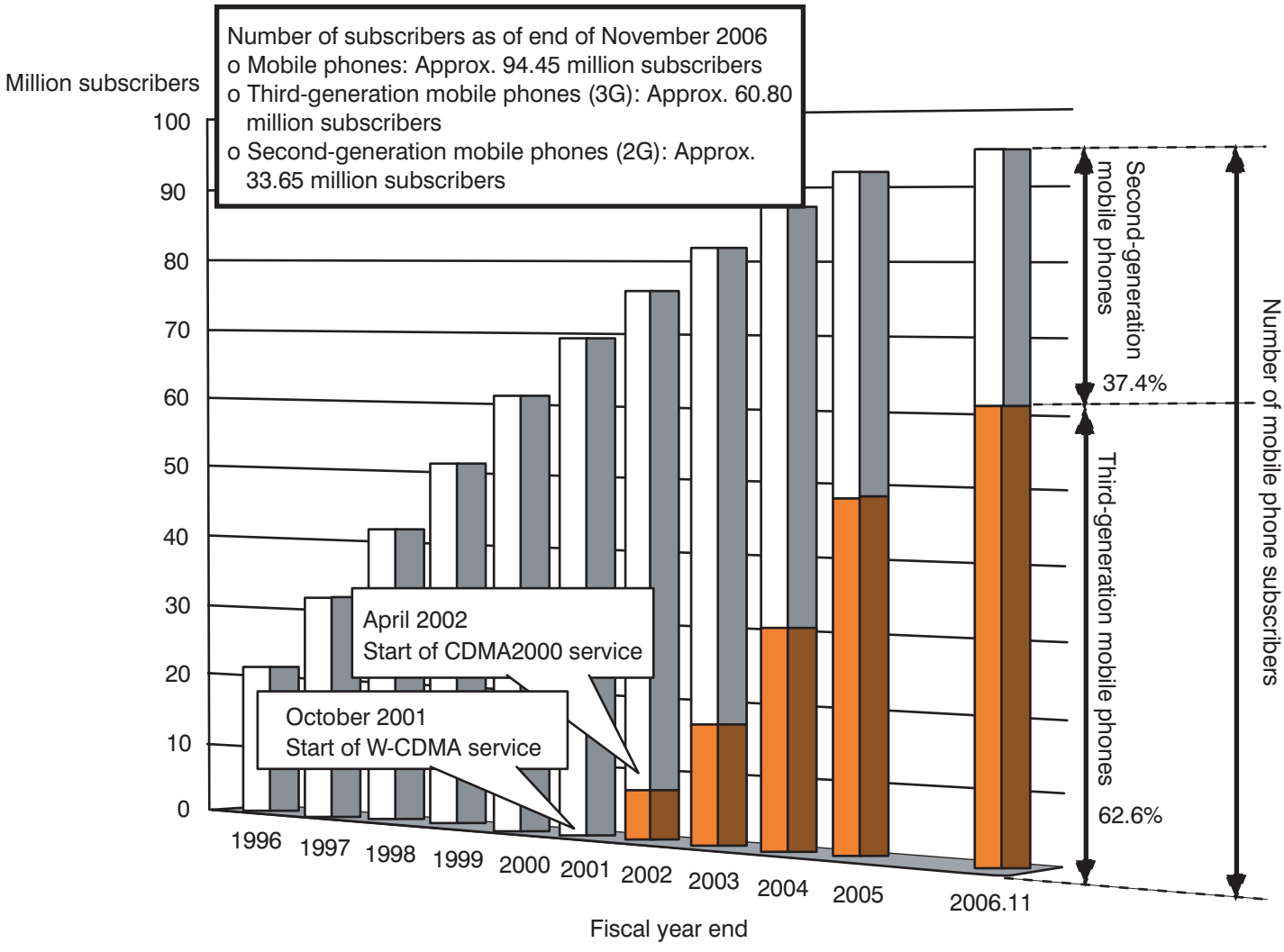
COUNCIL REPORT

Technical Requirements for Effective Spectrum Use in the 1.5 GHz Band - Partial Report from the Information and Communications Council

On December 21, MIC received a partial report from the Information and Communications Council (Chair: SHOYAMA Etsuhiko, Chairman of Hitachi Ltd.) concerning the "Technical Requirements for Effective Spectrum Use in the 1.5 GHz Band" portion of the "Measures for Effective Spectrum Usage in Mobile Phones" (Telecommunications Technology Council Inquiry No.81 of July 24, 1995).

Background

In the report "Mid- to long-term outlook of radio spectrum use and the role of administration" (Radio Policy Vision) in August 2002, the Information and Communications Council investigated the maintenance of the radio spectrum as mobile communications systems improve the quality and increase in usage. It also calculated the necessary radio spectrum for mobile communications systems, and showed that a range of approximately 330 to 340 MHz would be needed in the mid-term (2008).



Also, with regard to third-generation mobile phones (3G), the number of subscribers had reached the 60 million at the end of November 2006, and the rate of 3G subscribers in all mobile phone subscribers exceeds 60%. It shows that second-generation mobile phones (2G) is shifting to 3G rapidly. In conjunction with this, MIC distributed additional frequencies (1.7 GHz for FDD and 2 GHz for TDD) for 3G in 2005, but it also has to maintain additional 3G frequencies to handle further growth in the 3G market in future.

In addition, the report from the "Study Group Concerning a Framework for Area Installation in Mobile Phone Services" (March 2003), proposes wireless entrance circuits as one measure to expand the installed area for mobile phone services.

Outline

In "Action Plan for Radio Spectrum Reallocation (revised)" of October 2005, MIC clarified the policies that it is necessary for the promotion to upgrade mobile phones to 3G and reallocate 1.5 GHz band, which is currently being used for 2G and customer-owned and maintained wireless communications.

Taking this policy into consideration, in order to encourage the reallocation of the radio spectrum to upgrade to 3G in the 1.5 GHz band and introduce of non-regenerative system entrance circuits*, the Information and Communications Council started an investigation on February 27, 2006 concerning "Technical Requirements for Effective Use of 1.5 GHz Band", and MIC received its report on December 21.

* The non-regenerative system entrance circuit is an entrance circuit which uses a simple relay method to convert CDMA signal and relay it directly, in the interface between the access network and the entrance network.

Outline of report

The outline of the report is as below.

Furthermore, the entire text (in Japanese) can be shown on the MIC website, at the following URL:
http://www.soumu.go.jp/joho_tsusin/policyreports/joho_tsusin/index.html

Future plans

MIC will take this report into consideration and plans to move ahead with the formulation of technical standards and changes in the frequency reallocation plan, to introduce 3G (FDD format) in the 1.5 GHz band.

OUTLINE OF REPORT

Outline of Interference Study

In order to reallocate the 1.5 GHz band which is currently being used by radio systems such as 2G, and maintain the spectrum anew for 3G, it is necessary to carry out a study on conditions for sharing with contiguous systems, in the case of introduction of 3G into the 1.5 GHz band. A study (interference study) was therefore implemented on the conditions for sharing for 3G, the existing 2G and MCA Digital, as well as radio astronomy and mobile satellite communications services that are contiguous to 1.5 GHz.

Furthermore, since the 1.5 GHz band is not in the IMT-2000 band plan, this study was implemented on the assumption that, on the one hand, the 1.5 GHz band would be used for 3G in the urban areas where the frequency is congested, on the other hand, it would not be used in rural areas where the frequency is not congested and would be used as an entrance circuit for 3G.

Conditions for Sharing with Contiguous Systems

As a result of the interference study, the guardbands needed between radio systems using the 1.5 GHz band are as follows:

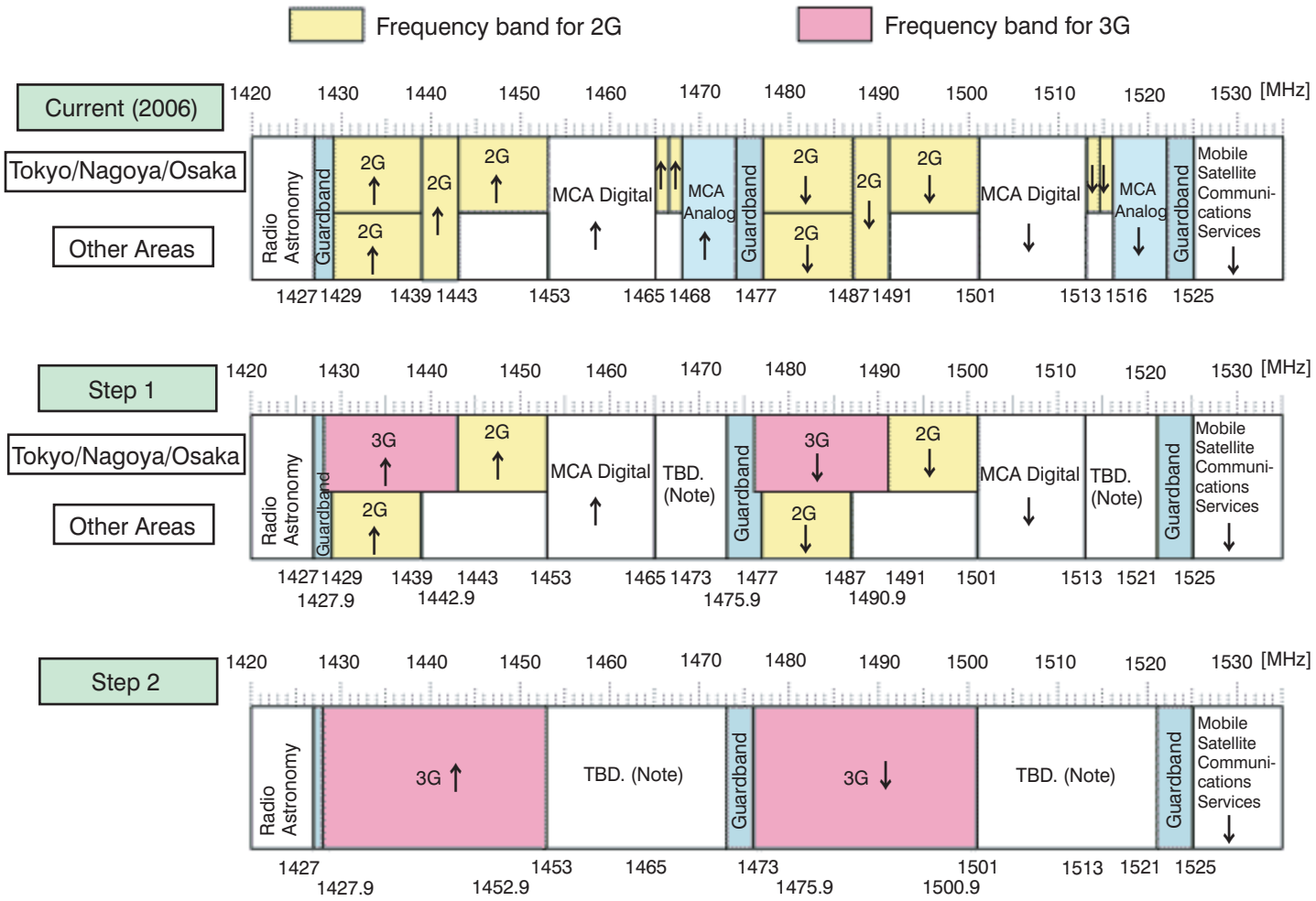
Needed Guardband Widths (left column → top row / top row → left column)

	W-CDMA ↑	CDMA2000 ↑	PDC ↑	MCA Digital ↑	Mobile Satellite Communications Services ↓
W-CDMA ↓	*1 9MHz /10MHz	9MHz /3MHz	8MHz /2MHz	*3 2.9MHz /0MHz	3MHz /—
CDMA2000 ↓	9MHz /10MHz	*2 8MHz /4MHz	7MHz /2MHz	*3 2.9MHz /0MHz	3MHz /—
PDC ↓	3MHz /5MHz	3MHz /3MHz	—	3MHz /0MHz	—
MCA Digital ↓	9MHz /13MHz *4	9MHz /10MHz *5	—	—	3MHz /—
Radio Astronomy	— /0MHz *6	— /0MHz *6	—	—	—

*1 In case of the distance between antennas at 0 m (same operator): 22 to 38 MHz
*2 In case of the distance between antennas at 0 m (same operator): 21 to 37 MHz
*3 9 MHz guardband can be reduced to 2.9 MHz using technical measures
*4 In case of incurred interference station being the administrative mobile station: 10 MHz
*5 In case of incurred interference station being the administrative mobile station: 5 MHz
*6 Can be shared through geographic compartmentalization

Reallocation Scenario for 1.5 GHz Band

Based on the results from the calculations of the guardbands needed for the various radio systems using the 1.5 GHz band, it was investigated how to distribute the frequency bands which are used by each radio system for the effective use of the radio spectrum and upgrading from 2G to 3G. The conclusion of the investigation was that distributing them as shown below would be most appropriate.



Note:
With regard to the TBD. band, it is conceivable that, for example, a scenario in which frequencies used by the existing MCA Digital system were transferred to high frequencies within the TBD. bands, or a scenario to allocate further additional frequencies for 3G so as to handle the congested 3G frequencies.

Technical Requirements

In the investigations carried out by the Information and Communications Council, the results of the investigations on technical requirements for radio systems are as follows:

(1) Technical requirements for 3G (FDD format) in the 1.5 GHz band

- The same technical requirements as for 3G (FDD format) in the 800 MHz band, the 1.7 GHz band and the 2 GHz band.
- Take measures not to interfere with other radio stations such as MCA Digital relay stations, by such as selecting the location of base stations or adding filters.

(2) Technical requirements for 3G non-regenerative system ntrance circuits* in the 1.5 GHz band

- Based on specifications for 3G (FDD format) base stations in the 1.5 GHz band.
- It is appropriate to give radio station licenses for 3G (FDD format) and non-regenerative system entrance circuits in the 1.5 GHz band to the same license holders.

* The non-regenerative system entrance circuit is an entrance circuit which uses a simple relay method to convert CDMA signal and relay it directly, in the interface between the access network and the entrance network.

Others

In addition to technical requirement for 3G and non-regenerative system entrance circuits in the 1.5 GHz band, technical requirements were also compiled for the following radio systems.

(1) Technical requirements for 3G (TDD format) in the 2 GHz band

- As a system for improving TD-CDMA, a 10 MHz system (7.68 Mcps) was newly added to the existing 5 MHz system (3.84 Mcps).

(2) Regenerative systementrance circuits* in the 22 GHz band

- Transmission speed is increased from 8 Mbps to 156 Mbps for 3G usage in what is currently being used for 2G.

* Regenerative system entrance circuits are existing modulating and demodulating circuits in the interface between the access network and the entrance network.