ENGLISH TRANSLATION

RADIO EQUIPMENT USED FOR TDMA DIGITAL ENHANCED CORDLESS TELECOMMUNICATIONS

ARIB STANDARD

ARIB STD-T101 Version 1.0

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Association of Radio Industries and Businesses

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Introduction

With participation of radio communication equipment manufacturers, broadcasting equipment manufacturers, telecommunications operators, broadcasters and general equipment users, Association of Radio Industries and Businesses (ARIB) defines basic technical requirements for standard specifications of radio equipment, etc. as an "ARIB STANDARD" in the field of various radio systems.

In conjunction with national technical standards which are intended for effective spectrum utilization and avoidance of interference with other spectrum users, an ARIB STANDARD is intended as a standard for use by a private sector compiling various voluntary standards regarding the adequate quality of radio and broadcasting service, compatibility issues, etc., and aims to enhance conveniences for radio equipment manufacturers, telecommunications operators, broadcasting equipment manufacturers, broadcasters and general users.

An ARIB STANDARD herein is published as "RADIO EQUIPMENT USED FOR TDMA DIGITAL ENHANCED CORDLESS TELECOMMUNICATIONS". In order to ensure fairness and transparency in the defining stage, the standard was set by consensus of the standard council with participation of interested parties including radio equipment manufacturers, telecommunications operators, broadcasters, testing organizations, general users, etc. with impartiality.

It is our sincere hope that the standard would be widely used by radio equipment manufacturers, testing organizations, general users, etc.

Contents

Chapter 1 General Descriptions

1.1 Outline

The standard defines requirements for radio equipment used for TDMA digital enhanced cordless telecommunications stipulated in Article 49.8.2.2 of Ordinance Regulating Radio Equipment.

1.2 Scope of application

The standard defines the radio equipment as shown in Figure 1-1.

The standard does not prescribe transmission protocols, the requirements for interoperability, but the systems designed for mutual connection (hereafter called "systems interoperability") refer to Chapter 4.

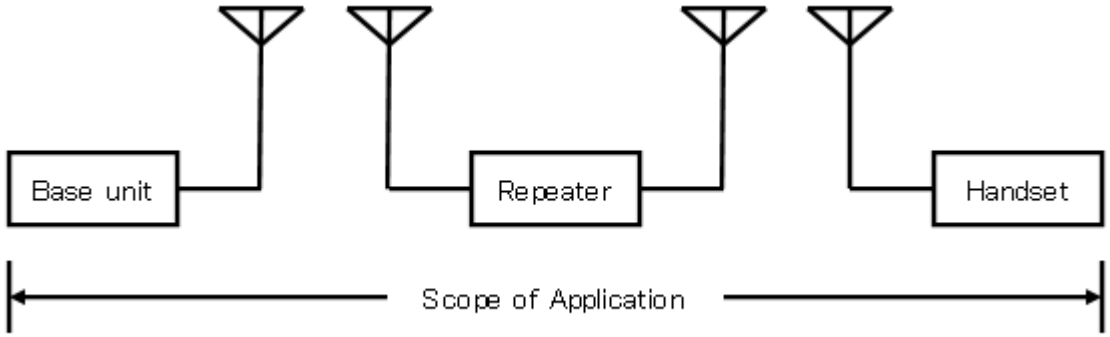


Figure 1-1 Scope of Application

1.3 Normative References

In the standard, "RERL" refers to Regulations for Enforcement of the Radio Law, "ORE" refers to Ordinance Regulating Radio Equipment, "OTRCC" refers to Ordinance Concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment, "NT" refers to a Notification of the Ministry of Posts and Telecommunications if issued in 2000 or earlier, and a Notification of the Ministry of Internal Affairs and Communications if issued in 2001 or later.

1.4 Informative References

[1] ETSI EN 300 175 Part 1 (Overview).

[2] ETSI EN 300 175 Part 2 (Physical Layer (PHL))

[3] ETSI EN 300 175 Part 3 (Medium Access Control (MAC) layer)

[4] ETSI EN 300 175 Part 4 (Data Link Control (DLC) layer)

[5] ETSI EN 300 175 Part 5 (Network (NWK) layer)

[6] ETSI EN 300 175 Part 6 (Identities and addressing)

[7] ETSI EN 300 175 Part 7 (Security features)

[8] ETSI EN 300 175 Part 8 (Speech and audio coding and transmission)

Chapter 2 Standard System

2.1 Overview of the Standard System

The radio stations of TDMA digital enhanced cordless telecommunications are designed to perform radio transmission of digitized information signals.

2.2 Structure of the Standard System

The standard system of TDMA digital enhanced cordless telecommunications consists of Base units, Handsets, and Repeaters.

- Base unit

  A base unit refers to a radio equipment that is used mainly at a fixed location (except those which have a function for relaying radio communications).

- Handset

  A handset refers to a radio equipment other than base units (except those which have a function for relaying radio communications).

- Repeater

  A repeater refers to a radio equipment that relays communications between a base unit and a handset. Regarding technical requirements for repeaters, transmissions from the handset to the base unit (up-link) are subject to the technical requirements for the handset, and transmissions from the base unit to the handset (down-link) are subject to the technical requirements for the base unit. If there are specific stipulations for the repeater, this provision does not apply.

Chapter 3 Technical Requirements for Radio Equipment

3.1 General Conditions

(1) Operating frequency band

(RERL, Article 6)

Emissions of a frequency of 1,895.616 MHz or an integral multiple of 1,728 kHz added to 1,895.616 MHz in a range from 1,895.616 MHz to 1,902.528 MHz shall be used.

(2) Emission class and use

(RERL, Article 6)

(NT, No.129, 2002)

Emission class and use are as listed in Table 3-1.

Table 3-1 Emission Class and Use

Frequency	Emission class	Use
1,895.616 MHz, 1,897.344 MHz, 1,899.072 MHz, 1,900.8 MHz, 1,902.528 MHz	D1C, D1D, D1E, D1F, D1X, D7C, D7D, D7E, D7F, D7W, D7X, F1C, F1D, F1E, F1F, F1X, F7C, F7D, F7E, F7F, F7W, F7X, G1C, G1D, G1E, G1F, G1X, G7C, G7D, G7E, G7F, G7W, G7X	Control channel, Traffic channel

(3) Interference prevention function

(RERL, Article6.2)

(ORE, Article 9.4)

The radio equipment shall mainly be used in the same premises. It shall automatically transmit/receive identification codes.

(4) Identification sign length

(NT, No.424, 1994)

The identification sign length of a base unit is 40bit. The identification sign length of radio equipment other than base units is 36bit.

(5) Communication method

(ORE, Article 49.8.2.2)

For transmission from a base unit to a handset (including those transferred by repeater), the communication method shall be time division duplex operation based on time division multiplexing. For transmission from a handset to a base unit (including those transferred by repeater), the communication method shall be time division duplex operation based on time division multiple access.

(6) The number of multiplexed channels, the number of channels per carrier

(ORE, Article 49.8.2.2)

(NT, No.389, 2010)

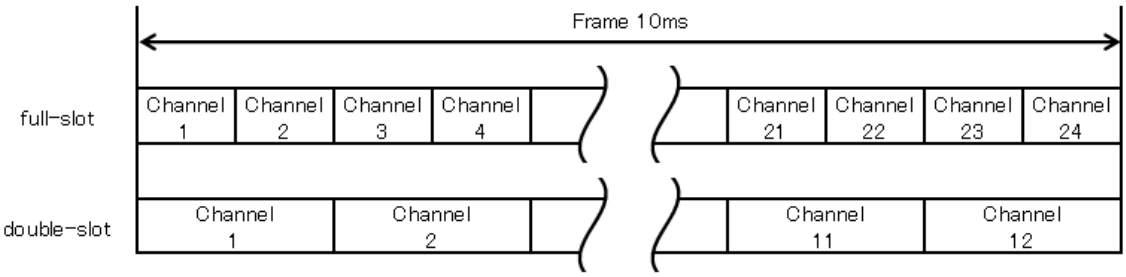
The number of multiplexed channels in time division multiple telecommunication, the number of channels per carrier in time division multiple access shall be 6, 7, 8, 9, 10, 11, or 12.

(7) Frame configuration

(ORE, Article 49.8.2.2)

(NT, No.389, 2010)

The frame configuration is as shown in Figure 3-1.



A combination of full slots and double slots can be used in a frame.

Figure 3-1 Frame Configuration

(8) Cabinet

(ORE, Article 49.8.2.2)

(NT, No.389, 2010)

The radio equipment shall be contained within a single enclosure that is not easy to open. However, regarding power supply equipment, mouthpiece, and ear receiver, as well as equipment listed below, this provision does not apply.

a) Radio equipment used in handset

Equipment other than RF section and modulator section (excluding antenna and related parts)

b) Radio equipment other than listed in a)

(a) Displays indicating the operation status of the transmitter equipment and receiver equipment, and other parts also are subject to the same requirement.

(b) Operation control parts used for performing communication

(c) Volume control parts and related parts

(9) Carrier sense

a) When preparing to emit a radio wave, emission in the respective channel shall be enabled only if the received power of radio waves from any radio station other than the communication pair in the channel to be used for emission and the corresponding channel to be used for reception is -62 dBm or lower for at least 2 consecutive valid frames.

(ORE, Article 49.8.2.2)

(NT, No.389, 2010)

(NT, No.424, 1994)

b) The measured level of radio waves received from any radio station other than the communication pair in the channel to be used for emission and the corresponding channel to be used for reception for at least 2 consecutive valid frames (hereafter called the "interference level") shall be evaluated using two carrier sense levels called Level 1 and Level 2. The carrier sense level values are given in Table 3-2.

Table 3-2 Carrier Sense Levels

Level 1	-82 dBm
Level 2	-62 dBm

Frequencies shall be divided into Carrier Group 1 and Carrier Group 2. Carrier group values are given in Table 3-3.

Table 3-3 Carrier Groups

Carrier Group 1	1,895.616 MHz, 1,897.344 MHz, 1,902.528 MHz
Carrier Group 2	1,899.072 MHz, 1,900.8 MHz

When selecting a channel for radio wave emission, the priority sequence shall be as follows, in descending order: channel in Carrier Group 1 with Level 1 or lower, channel in Carrier Group 2 with Level 1 or lower, channel in Carrier Group 1 with Level 2 or lower, channel in Carrier Group 2 with Level 2 or lower.

c) When selecting a channel for radio wave emission, if the radio station has restrictions regarding the slots that can be used, channel selection as stipulated in b) shall be carried out for the available slots.

d) The reception bandwidth when measuring the interference level shall be at least equal to the bandwidth of the signal to be emitted.

e) The reception power when measuring the interference level shall be the peak value for the frequency to be used for transmission and the occupied time duration.

f) When intending to start a transmission (including in a control channel or a broadcast channel without the provision for response), the radio station selecting the channel for communication shall measure the interference level immediately before emitting a radio wave.

g) When intending to start a transmission, a radio station for which a channel has been specified by the transmission partner station may use the saved interference level information (called the "channel list", to be updated at least every 30 seconds) for evaluation and may start radio wave emission if the respective channel is at or below level 2.

(10) Protection of TDMA narrow-band digital cordless telecommunications

a) When the base unit prepares to emit a radio wave at 1,897.344 MHz, 1,899.072 MHz, or 1,900.8 MHz, emission shall only be enabled if the received power in the TDMA narrow-band digital cordless telephone control channel is -82 dBm or lower.

(ORE, Article 49.8.2.2)

(NT, No.389, 2010)

(NT, No.424, 1994)

b) When the base unit prepares to emit an radio wave at 1,897.344 MHz, 1,899.072 MHz, or 1,900.8 MHz, if received power of the TDMA narrow-band digital cordless telephone control channel at the 1,899.072 MHz and 1,900.8 MHz frequency is continuously at -82 dBm or lower for at least 300 ms, this shall be taken as absence of a radio wave in that channel. If received power exceeds -82 dBm, this shall be taken as presence of a radio wave in that channel. Radio wave emission shall be enabled if the result is that there is no radio wave in the TDMA narrow-band digital cordless telephone control channel.

c) When the base unit has determined that there is a radio wave in the TDMA narrow-band digital cordless telephone control channel, it shall report that new radio wave emission at 1,897.344 MHz, 1,899.072 MHz, or 1,900.8MHz is not possible and shall not begin radio wave emission at these frequencies. If the respective frequency is already being used for communication, continuous radio wave emission for this communication shall be allowed.

d) When using the 1,899.072 MHz or 1,900.8 MHz frequency, the same channel may not be occupied for more than 8 hours.

e) If the base unit cannot determine the presence or absence of a radio wave in the TDMA narrow-band digital cordless telephone control channel immediately before starting radio wave emission at 1,897.344 MHz, 1,899.072 MHz, or 1,900.8MHz, the presence/absence evaluation shall be made according to the following method.

(a) The base unit shall use the latest information about the presence/absence of a radio wave in the TDMA narrow-band digital cordless telephone control channel at the time of power-up, system reset, and during operation as a basis for evaluation.

(b) The base unit shall evaluate the presence/absence of a radio wave in the TDMA narrow-band digital cordless telephone control channel at least once every hour.

(c) The base unit, when evaluating the presence/absence of a radio wave in the TDMA narrow-band digital cordless telephone control channel at the time of power-up or a system reset, shall take evaluation failure due to overlapping radio waves from other radio stations as equivalent to the presence of a radio wave in the TDMA narrow-band digital cordless telephone control channel.

(d) The base unit, when evaluating the presence/absence of a radio wave in the TDMA narrow-band digital cordless telephone control channel during operation, shall continue to use the previous evaluation result if evaluation fails due to overlapping radio waves from other radio stations, or due to overlapping with the channel or slot used by the radio station itself.

(11) Interference avoidance

a) During a communication session, communication quality shall be monitored by suitable means.

b) Communication quality shall also be monitored by suitable means when using a control channel or a broadcast channel without the provision for response.

c) If interference occurs during communication, interference avoidance measures shall be possible on a channel basis.

d) Interference avoidance measures shall include slot position switching, frequency switching, transmission stop, etc.

(12) Failure

(ORE, Article 49.8.2.2)

When emissions are radiated continuously because of a failure in the radio equipment, the radiation shall be automatically stopped before the radiation continues for 60 seconds.

(13) Operation for stopping communications

(ORE, Article 49.8.2.2)

When operation for stopping communications is performed or emissions of traffic channels are not received, the radiation of emissions shall be stopped automatically.

3.2 Transmitter

(1) Frequency tolerance

(ORE, Article 5, Table No.1)

The frequency tolerance shall be 10×10^{-6} (10ppm).

(2) Permissible value for occupied bandwidth

(ORE, Article 6, Table No.2)

The permissible value for occupied bandwidth shall be 1,728 kHz or less.

(3) Permissible values for unwanted emission intensity

(ORE, Article 7, Table No.3)

a) Permissible value for unwanted emission intensity in spurious range (except for frequency bands listed in c)

Average power -36 dBm or less in any 1 MHz band

b) Permissible value for unwanted emission intensity in out-band range (except for frequency bands listed in c)

(a) Within 864 kHz to 1,228 kHz from center frequency:
Average power -5.6 dBm or less in any 192 kHz band

(b) Within 1,228 kHz to 2,592 kHz from center frequency:
Average power -9.5 dBm or less in any 1 MHz band

(c) Within 2,592 kHz to 4,320 kHz from center frequency:
Average power -29.5 dBm or less in any 1 MHz band

c) Permissible value for unwanted emission intensity in the frequency range between 1,891.296 MHz and 1,893.146 MHz and between 1,906.1 MHz and 1,906.848 MHz

(a) Average power -31 dBm or less in the range from 1,892.846 MHz to 1,893.146 MHz and from 1,906.1 MHz to 1,906.754 MHz

(b) Average power -36 dBm or less in the range from 1,891.296 MHz to 1,892.846 MHz and from 1,906.754 MHz to 1,906.848 MHz

(4) Tolerance for antenna power

(ORE, Article 14)

The tolerance for antenna power shall be +20%, -50%.

(5) Modulation method

(ORE, Article 49.8.2.2)

The modulation method shall be FSK, π/2-BPSK, π/4-QPSK, π/8-8PSK, 16QAM, or 64QAM.

(6) Carrier off time leakage power

(ORE, Article 49.8.2.2)

During communication, the leakage power shall be 80 nW or less when the carrier is not transmitted.

(7) Transmission rate of modulation signal

(ORE, Article 49.8.2.2)
(NT, No.389, 2010)

The transmission rate of modulation signal shall be as shown in Table 3-4.

Table 3-4 Transmission Rate of Modulation Signal

Modulation method	Transmission rate of modulation signal
FSK, π/2-BPSK	1,152 kbit/s
π/4-QPSK	2,304 kbit/s
π/8-8PSK	3,456 kbit/s
16QAM	4,608 kbit/s
64QAM	6,912 kbit/s

(8) Tolerance for transmission rate of modulation signal

(NT, No.389, 2010)

The tolerance for transmission rate of modulation signal shall be 100×10^{-6}.

(9) Antenna power

(RERL, Article 6)

(ORE, Article 49.8.2.2)

The antenna power shall be 10 mW or lower in terms of the mean power per channel.

(10) Absolute gain of the antenna

(ORE, Article 49.8.2.2)

The absolute gain of the antenna shall be 4 dB or less. However, when the effective radiated power is equal to or less than the value obtained by applying an antenna power of 10 mW to the antenna with its absolute gain being 4 dB, the shortage shall be compensated for by the gain of the antenna.

3.3 Receiver

(1) Limit on Secondary Radiated Emissions, etc.

(ORE, Article 24)

The limit on secondary radiated emissions, etc. shall be as shown in Table 3-5.

Table 3-5 Limit on Secondary Radiated Emissions, etc.

Frequency band	Limit on secondary radiated emission
30 MHz or higher to lower than 1,000 MHz	The mean power in any 100 kHz shall be a value no greater than 2 nW.
1,000 MHz or higher to lower than 1,893.5 MHz	The mean power in any 100 kHz shall be a value no greater than 20 nW.
1,893.5 MHz or higher to lower than 1,906.1 MHz	The value shall be as defined below. 1 The mean power in the 1 MHz bandwidth in 126 frequencies which have added an integral multiple of 100 kHz to 1,893.55 MHz and 1,893.55 MHz in the range of 1,893.55 MHz to no greater than 1,906.05 MHz shall be a value not greater than 2 nW; provided that the mean power in the 1 MHz bandwidth shall be a value no greater than 20 nW for any continuous 10 among the said 126 frequencies. 2 The mean power in the 30 kHz bandwidth in 420 frequencies which have added an integral multiple of 30 kHz to 1,893.515 MHz and 1,893.515 MHz in the range of 1,893.5.5 MHz to no greater than 1,906.085 MHz shall be a value not greater than 0.06 mW; provided that the mean power in the 30 kHz bandwidth shall be a value no greater than 250 nW for any continuous 2 among the said 420 frequencies.
1,906.1 MHz or higher to lower than 12.75 GHz	The mean power in any 100 kHz shall be a value no greater than 20 nW.

3.4 Handset

(1) Radio communication which is performed between two or more handsets (limited to the handsets which memorize a identification sign of the same base unit)

(ORE, Article 49.8.2.2)

Radio communication which is performed between two or more handsets (limited to the

handsets which memorize a identification sign of the same base unit), and for which a base unit is bypassed, shall comply with the conditions below.

a) Emissions of a frequency of 1,895.616 MHz or 1,897.344 MHz shall be used.

b) The call duration shall not exceed 30 minutes.

c) After a call termination, the radiation of emissions shall be stopped for 1/90 or longer (at least two seconds) of the time required for the call.

(2) Radio communication which is performed between two or more handsets (limited to the handsets which don't memorize a identification sign of the same base unit)

(ORE, Article 49.8.2.2)

(NT, No.389 2010)

Radio communication which is performed between two or more handsets (limited to the handsets which don't memorize a identification sign of the same base unit), and for which a base unit is bypassed, shall comply with the conditions below.

a) Emissions of a frequency of 1,895.616 MHz shall be used.

b) The call duration shall not exceed 30 minutes.

c) After a call termination, the radiation of emissions shall be stopped for 1/90 or longer (at least two seconds) of the time required for the call.

d) The maximum number of simultaneously usable channels shall be 1 except when the channel is switched.

(3) Maximum number of simultaneously usable channels

(ORE, Article 49.8.2.2)

(NT, No.389, 2010)

The maximum number of simultaneously usable channels in the radio equipment used for a handset shall be 12 except when the channel is switched. But, if double slots were included, the number of the channel of the double slots included in 1 frame is decreased from 12.

Chapter 4 Systems Interoperability

The systems interoperability refers to the documents indicated below. (Informative)

If the specifications of Chapter 3 and the documents overlap, the specifications of Chapter 3 shall be met.

4.1 System Outline etc.

ETSI EN 300 175 Part 1 (Overview)

4.2 Transmission Protocols etc.

4.2.1 Common interface

(1) Physical layer

ETSI EN 300 175 Part 2 (Physical Layer (PHL))

(2) Medium access control layer

ETSI EN 300 175 Part 3 (Medium Access Control (MAC) layer)

(3) Data link control layer

ETSI EN 300 175 Part 4 (Data Link Control (DLC) layer)

(4) Network layer

ETSI EN 300 175 Part 5 (Network (NWK) layer)

(5) Identities and addressing

ETSI EN 300 175 Part 6 (Identities and addressing)

(6) Security

ETSI EN 300 175 Part 7 (Security features)

(7) Audio

ETSI EN 300 175 Part 8 (Speech and audio coding and transmission)

4.2.2 Carrier frequency number

ETSI EN 300 175 Part 2 (Physical Layer (PHL)) Annex F.2

The carrier frequency number allocation shall be as shown in Table 4-1.

Table 4-1 Carrier Frequency Number Allocation

Carrier number	RF band number	Carrier frequency
1	-	1,895.616 MHz
0	-	1,897.344 MHz
10	00001	1,899.072 MHz
11	00001	1,900.8 MHz
12	00001	1,902.528 MHz

4.2.3 Reporting of available carrier frequencies

ETSI EN 300 175 Part 3 (Medium Access Control (MAC) layer), 7.2.4.3.9 Active carriers

4.2.4 Identification sign

(1) Identification sign used by base unit radio equipment

The RFPI (Radio Fixed Part Identity) specified in ETSI EN 300 175 Part 6 (Identities and addressing), 5 FP identities

(2) Identification sign used by radio equipment other than base unit

The IPEI (International Portable Part Equipment Identity) specified in ETSI EN 300 175 Part 6 (Identities and addressing), 10 Equipment related identities

Chapter 5 Measurement Method

Measurement methods shall be in accordance with MIC Notification related with OTRCC, Item 1 (3) in Table No.1 (Note). Items that are not specified in the MIC Notification, however, shall be based on conventionally practiced methods.

In addition, TELEC-T254 ("Characteristic test method for radio equipment used for TDMA digital enhanced cordless telecommunications (Japan DECT)") what is issued by Telecom Engineering Center (TELEC) Foundation commissioned by the paragraph 2 of MIC Notification No. 88 on January 26, 2004, may be referred as the measurement method.

Note: At the release date of ARIB STD-T101 Ver. 1.0, it means MIC Notification No, 88 on January 26, 2004. However if the MIC Notification and the contents of the MIC Notification are revised in near future, measurement methods shall be in accordance with latest versions of the MIC Notification and the contents,

Annex 1 Test Items Associated with Specified Radio Equipment

(OTRCC, Table No.1)

Test items in relation to the technical regulation conformity certification for radio equipment used for TDMA digital enhanced cordless telecommunications as follows:

(1) Transmitter

Frequency

Occupied frequency bandwidth

Spurious emission or unwanted emission intensity

Antenna power

Adjacent channel leakage power or out-band leakage power

Power when carrier is not being transmitted

Transmission rate

(2) Receiver

Limit of radio waves which are secondarily emitted

Annex 2 Operation Guidelines

1 Purpose

The operation guidelines cover operation of radio station used for TDMA digital enhanced cordless telecommunications using frequencies in the range from 1,893.5 MHz to 1,906.1 MHz (hereafter called the 1.9 GHz band). The guidelines are aimed at preventing harmful radio interference with radio station using the same frequency band, namely TDMA narrow-band digital cordless telecommunications radio stations, TD-OFDMA digital cordless telecommunications radio stations, and PHS radio stations, to ensure efficient use of frequency resources and enhance convenience for all users.

Harmful radio interference here refers to continued and serious interference with the functioning of other radio station.

2 Scope of Application

The operation guidelines apply to users as well as to persons (hereafter called specialized vendors) involved in the manufacture, sales, implementation, operation, and maintenance of radio station used for TDMA digital enhanced cordless telecommunications.

3 Target System

The operation guidelines apply to the following system.

Radio equipment used for TDMA digital enhanced cordless telecommunications: ARIB STD-T101

4 Clarification of Problems

4.1 Operation manual

The Operation manual of radio station used for TDMA digital enhanced cordless telecommunications shall contain a caution notice such as shown in the text box below, as well as the specified indication on the product, as described in section 4.3.

The frequency band used by this radio station is also used by PHS radio station and other types of digital cordless telephone radio stations.

1 This device is designed so as to minimize the risk of radio interference with other radio station in the same frequency band, but in the event that harmful radio interference with other radio station occurs, the user of this device should cease operation immediately and contact the service desk indicated below to discuss ways of avoiding radio interference (such as installing partitions etc.).

2 In case of any other problems, also contact the service desk indicated below.

Service desk:

4.2 Catalogs, Brochures, Websites

Catalogs, brochures, websites etc. dealing with radio station used for TDMA digital enhanced cordless telecommunications shall carry a caution notice similar to that specified for the operation manual, as well as content similar to specified indication on the product, as described in section 4.3.

4.3 Indication on Product

The radio equipment used for TDMA digital enhanced cordless telecommunications shall carry an indication of the "1.9 GHz band digital cordless telephone radio station type" on the radio equipment body, using the abbreviated code shown below. If the indication cannot be placed on the radio equipment body itself due to restrictions related to physical size, mounting format, or design, the same content may be displayed using a sticker.

1.9-D

"1.9-" : Denotes the digital cordless telephone radio station using the 1.9 GHz band.

"D" : Indicates the type of digital cordless telephone radio station. (For details, see section 4.3.1.)

For radio station incorporating multiple radio stations, the code indicating the digital cordless telephone radio station shall be separated from other codes by a slash, e.g. "D/P".

4.3.1 Digital cordless telephone radio station type

The type of digital cordless telephone radio station covered by the operation guidelines is indicated by the code shown in Reference Table 2-1.

Reference Table 2-1 Digital Cordless Telephone Radio Station Type

Radio station	Symbol	Standard
TDMA digital enhanced cordless telecommunications	D	ARIB STD-T101

Codes for other types of digital cordless telephone radio stations using the same frequency band are shown in Reference Table 2-2.

Reference Table 2-2 Other Digital Cordless Telephone Radio Station Types Using the Same Frequency Band

Radio station	Symbol	Standard
TDMA narrow-band digital cordless telecommunications	P	RCR STD-28
TD-OFDMA digital cordless telecommunications	S	RCR STD-28

4.3.2 Indication methods etc.

(1) Indication method

No particular specification. Indication can be by adhesive sticker, printed on equipment model name plate, embossed on enclosure, or other suitable method.

(2) Size, aspect ratio, background color, border use

No particular specification.

(3) Material

No particular specification, but should be durable and resistant to peeling and dirt.

(4) Font, text color

No particular specification, but should be easy to read and understand.

4.4 Packaging

The individual packaging for the radio equipment shall show the same "1.9 GHz band digital cordless telephone radio station type" indication as on the product. This provision does not apply to packaging for multiple units intended only for transport.

4.5 Others

Although this standard in part employs methods similar to the widely used Digital Enhanced

Cordless Telecommunications (hereafter abbreviated as "DECT") principle, it differs from overseas DECT standards regarding frequency bands and other technical aspects. Consequently, using overseas DECT compliant equipment without the Japanese Technical Conformity Mark in Japan is prohibited and constitutes a violation of the Radio Law.
Indication on products conforming to the present standard (including indication in documentation and on packaging) should make a clear distinction to overseas DECT compliant products.

5 Cooperation

5.1 Radio Interference Avoidance

If radio station used for TDMA digital enhanced cordless telecommunications has become the cause of harmful radio interference in other radio stations using the same frequency band, users and specialized vendors shall cooperate in efforts to resolve problems and avoid radio interference. The topmost priority in such cases shall be the protection of "PHS base stations and radio stations relaying communication between PHS bases stations and PHS land mobile stations".

5.2 Priority of Existing Radio Stations

If radio station used for TDMA digital enhanced cordless telecommunications is to be deployed in areas where other radio stations using the same frequency band are already operating or where operation of such radio station has been formally decided, it is the responsibility of the latecomer, i.e. the provider of radio station used for TDMA digital enhanced cordless telecommunications, to take proper measures to avoid radio interference.

5.3 Specialized Vendors

When supplying radio station used for TDMA digital enhanced cordless telecommunications to a user, a specialized vendor is to conduct a preliminary survey upon request by the user. Also in the absence of such a request, it is desirable that the specialized vendor conducts a preliminary survey on their own accord.
The preliminary survey shall check for the existence of other radio stations using the same frequency band by means such as listed below.

a) Visual check of the area
b) Using test functions incorporated in the product
c) Using test and measuring equipment

6 Influence on Implantable Medical Devices

To prevent adverse influences on implantable medical devices, it is desirable that suitable measures are implemented, in accordance with the "Guidelines for the prevention of influence by various types of radio equipment on implantable medical devices" (Note).

Note: Version 1.0 of this standard refers to the "Guidelines for the prevention of influence by various types of radio equipment on implantable medical devices" issued by the Japanese Ministry of Internal Affairs and Communications in May 2010. If other related guidelines are published after this point, these shall also be observed.

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