PERSONAL HANDY PHONE SYSTEM

TEST ITEMS AND CONDITIONS FOR
PUBLIC PERSONAL STATION
COMPATIBILITY CONFIRMATION

ARIB TECHNICAL REPORT

VERSION 3.2

RCR TR—23

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Association of Radio Industries and Businesses (ARIB)
General notes for the ARIB technical report in English version

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The original "Personal Handy Phone system Test Items and Conditions for Public Personal Station Compatibility Confirmation ARIB technical report Version 3.2 (RCR TR-23)" is written in Japanese and approved by the 23rd Standard Assembly Meeting February 2, 1999. This document is the translation of the technical report into English.
INTRODUCTION

The Association of Radio Industries and Businesses (ARIB) has been investigating and summarizing the basic technical requirements for establishing standards for developing various radio systems which utilize radiowaves. These will appear in the form of standards or technical reports governing the use of radio facilities and equipment for systems that transmit over radiowaves. Such standards are being developed based on the participation of and discussions with the various radio equipment manufacturers, operators and users.

Technical reports such as this serve as guidelines for developing private standards for regulating measurement and testing methods for use of the pertinent radio equipment based on the publicly established standard so as to ensure the necessary quality levels and compatibility of the radio equipment being developed.

This technical report specifies “Test Items and Conditions for Public Personal Station Compatibility Confirmation.” In order to ensure fairness, impartiality and openness among all parties involved, during the drafting stages, we are inviting operators and users both domestically and overseas to participate openly in the activities of the Standard Assembly so as to develop standards based on the total agreement of all parties involved.

The scope of application of this technical report covers the basic items for ensuring the compatibility of personal stations with the public cell stations of individual telecommunications operators. In order to put this technical report into practical use, it is necessary for telecommunications equipment operators and testing organizations dealing with the “Personal Handyphone System” to develop their own original sets of values which fall within the scope of this technical report.

We hope that this technical report will aid all parties involved, including radio equipment manufacturers, telecommunication operators and equipment users.

About description methods in this document

◆ The descriptions about version numbers of RCR TR-23 in this document, related standards and other related technical reports are defined as below.

Basically, there are 2 patterns in the description on version numbers.

1. Regarding the description on the protocol version, in most of cases, a version number shall be expressed just itself as indicated in (1), but including all of its revision numbers if the revision numbers exist (See (1)).

2. However, in some cases, a version number might be expressed as “version number + its revision number” style as indicated in (2).

(1) Version x → Version x.0 and Version x.n (n: if described only “Version x”, Version x include all revision number of Version x. n=1, 2, …)

(2) Version x Rev. - y → Version x.y
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Chapter 1   General Facts

1.1 Overview

Test related to compatibility confirmation on “public personal station for the Personal Handy Phone System” (hereinafter referred to as “personal station”) are performed for each personal station type within the scope of the basic functions and the standardization options specified in the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28). The purpose of these tests is to check the Personal Station’s compatibility with the radio interfaces specified in the RCR STD-28.

In principle, “types” as used in this standard shall refer to units that are identical to those subjected to certification of conformity with the technical standards conducted by Telecom Engineering Center (TELEC).

As a pre-condition for these tests, the operation of personal stations based on the said standard shall be confirmed thoroughly in the development and manufacturing stages under the sole responsibility of the manufacturers of the personal stations.

The test are conducted within the scope of the general testing environment, and the setting for the test environment or assignment of functions to the personal station are chosen in a manner that will not burden the testing organizations or mobile personal station manufacturers.

(Note) TELEC was formerly called as MKK (Radio Equipment Inspection and Certification Institute).

1.2 Classification of tests

There are two types of tests for compatibility of personal stations : (1) the connection simulator test, and (2) the compatibility confirmation test. These tests shall be mainly conducted by the personal station manufacturers.

The connection simulator tests shall be conducted to check the specified test items under the specified test conditions using a connection simulator.

The compatibility confirmation test shall be conducted by connecting a personal station which has already undergone the connection simulator test for checking the specified test items under the specified test conditions using a test system.

Note that the schedule for these tests can be set freely, regardless of whether they are conducted before or after the tests for Technical Standard Compliance Certification are conducted.
Chapter 2  Connection simulator Tests

2.1 Purpose

The connection simulator test is conducted using a connection simulator to check that personal stations produced by individual personal station manufacturers satisfy the public standard in the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28).

2.2 Configuration of the test system

Fig. 2.1 is an example of the configuration of the connection simulator test.

The connection simulator is generally referred to as a “cell station simulator” and features the functions for simulating the basic functions of a cell station, such as a transmission and reception with personal stations. This technical report does not specify the type of simulator to be used; however, it must be capable of simulating the specified functions.

Note that personal stations shall be hereinafter referred to as "PS" and the connection simulator as “CS” (cell station simulator).

![Fig. 2.1 System configuration for the connection simulator test](image-url)
2.3 Test items and conditions

2.3.1 Test item lists

2.3.1.1 Test items related to the technical requirements for radio facilities

The following items related to the technical requirements for radio facilities are to be tested using a connection simulator.

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Transmission characteristics</td>
</tr>
<tr>
<td>1-1-1</td>
<td>Transmission power</td>
</tr>
<tr>
<td>1-1-2</td>
<td>Transient response characteristics of burst transmission</td>
</tr>
<tr>
<td>1-1-3</td>
<td>Frequency stability</td>
</tr>
<tr>
<td>1-1-4</td>
<td>Modulation accuracy</td>
</tr>
<tr>
<td>1-1-5</td>
<td>Transmission rate accuracy</td>
</tr>
<tr>
<td>1-1-6</td>
<td>Physical slot transmission condition</td>
</tr>
<tr>
<td>1-1-7</td>
<td>Transmission timing</td>
</tr>
<tr>
<td>1-1-8</td>
<td>Transmission jitter</td>
</tr>
<tr>
<td>1-2</td>
<td>Reception characteristics</td>
</tr>
<tr>
<td>1-2-1</td>
<td>Sensitivity</td>
</tr>
<tr>
<td>1-2-2</td>
<td>Receive signal strength indicator accuracy</td>
</tr>
<tr>
<td>1-2-3</td>
<td>Bit error rate floor performance</td>
</tr>
</tbody>
</table>

2.3.1.2 Test items related to the communication control methods

The following items related to the communication control methods are to be tested by using a connection simulator.

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>Basic operation tests</td>
</tr>
<tr>
<td>2-1-1</td>
<td>Location registration — Location registration on turning the power for the PS ON</td>
</tr>
<tr>
<td>2-1-2</td>
<td>Outgoing call — PS originates a call and switches to the communication state</td>
</tr>
<tr>
<td>2-1-3</td>
<td>Disconnection (PS) — A call disconnected by the onhook operation for the PS during communication</td>
</tr>
<tr>
<td>2-1-4</td>
<td>Incoming call — After a call is received by the PS, PS is switched to the communication state by the offhook operation</td>
</tr>
<tr>
<td>2-1-5</td>
<td>Disconnection (CS) — PS receives &quot;disconnect&quot; message from the CS side during communication and disconnects the call</td>
</tr>
<tr>
<td>2-1-6</td>
<td>64k bit/s UDI outgoing call</td>
</tr>
<tr>
<td></td>
<td>— PS originates a 64k bit/s UDI call and switch to the communication state (Note 2)</td>
</tr>
<tr>
<td>2-1-7</td>
<td>64k bit/s UDI disconnection (PS)</td>
</tr>
<tr>
<td></td>
<td>— A call disconnected by PS during a 64k bit/s UDI communication (Note 2)</td>
</tr>
<tr>
<td>2-1-8</td>
<td>64k bit/s UDI incoming call</td>
</tr>
<tr>
<td></td>
<td>— After PS receiving a 64k bit/s UDI call, PS is switched to the communication state by connecting operation (Note 2)</td>
</tr>
<tr>
<td>2-1-9</td>
<td>64k bit/s UDI disconnection (CS)</td>
</tr>
</tbody>
</table>
— PS receives “Disconnect” message from CS side during a 64k bit/s UDI communication and disconnects the call (Note 2)

2-1-10 64k bit/s UDI outgoing call
— PS originates a 64k bit/s UDI call and switch to the communication state (Note 4,5)

2-1-11 64k bit/s UDI incoming call
— After PS receiving a 64k bit/s UDI call, PS is switched to the communication state by connecting operation (Note 4,5)

2-2 Application operation tests
2-2-1 Location registration operation tests
2-2-1-1 Location registration while the PS is moving between paging areas (Note 1).
2-2-1-2 Processing after location registration fails — location registration reject: retry enable (Note 1).
2-2-1-3 Processing after location registration fails — location registration reject: retry disable (Note 1).
2-2-1-4 Processing after location registration fails — no response from the CS side: the number of retries limited (Note 1).
2-2-1-5 Link channel establishment re-request transmission, with U-wave (Note 1).
2-2-1-6 Operation when the link channel assignment is rejected — with all slots used by CS (Note 1).
2-2-1-7 Location registration when the PS is moving between CSs in the same paging area — location registration not performed (Note 1).
2-2-1-8 Location registration to operators to whom the PS has not been registered — location registration not performed because of no coincidence with the system indication code (Note 1)
2-2-1-9 Location registration to operators to whom the PS has not been registered — location registration not performed because of no coincidence with the country code (Note 1)
2-2-1-10 Location registration over 2LCCH — uplink LCCH is 100ms cycle (Note 1).

2-2-2 Channel switching operation tests during communication
2-2-2-1 Channel switching during communication with CS indication: the same CS, same carrier, different slot
2-2-2-2 Channel switching during communication with CS indication: the same CS, different carrier and slot
2-2-2-3 Channel switching during communication with PS request: the same CS, same carrier and different slot
2-2-2-4 Channel switching during communication with PS request: the same CS, different carrier and slot
2-2-2-5 Channel switching during communication with CS indication: the same CS, different carrier and slot (switching back)
2-2-2-6 Handover with CS indication: Recalling-type to the home CS
2-2-2-7 Handover with CS indication: Recalling-type to other CS (in the same paging area)
2-2-2-8 Handover with PS judgment: PS recalling-type to other CS (in the same paging area)
2-2-2-9 Handover with CS indication: Recalling-type to other CS (in the same paging area) (switching back)
2-2-2-10 Handover with PS judgment: PS recalling-type to other CS (in other paging area)
2-2-2-11 64k bit/s UDI channel switching during communication with CS indication: the same CS, 1st TCH (Note 2)
2-2-2-12 64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (Note 2)
2-2-2-13 64k bit/s UDI channel switching during communication with PS request : the same CS, 1st TCH (Note 2)
2-2-2-14 64k bit/s UDI channel switching during communication with PS request : the same CS, 2nd TCH (Note 2)
2-2-2-15 64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH (switching back) (Note 2)
2-2-2-16 64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (switching back) (Note 2)
2-2-2-17 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH (Note 2)
2-2-2-18 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH (Note 2)
2-2-2-19 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 1st TCH (Note 2)
2-2-2-20 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 2nd TCH (Note 2)
2-2-2-21 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area) (Note 2)
2-2-2-22 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area) (switching back), 1st TCH (Note 2)
2-2-2-23 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area) (switching back), 2nd TCH (Note 2,6)
2-2-2-24 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area) (Note 2)
2-2-2-25 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH (Note 4,5)
2-2-2-26 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH (Note 4,5)
2-2-2-27 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 1st TCH (Note 4,5)
2-2-2-28 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 2nd TCH (Note 4,5)
2-2-2-29 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area) (Note 4,5)
2-2-2-30 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area) (switching back), 1st TCH (Note 4,5)
2-2-2-31 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area) (Note 4,5)

2-2-3  Restriction operation tests
  2-2-3-1 Operation by restriction group assigned :
    Restriction group applicable : No access cycle restriction
  2-2-3-2 Operation by restriction group assigned :
    Restriction group non-applicable : No access cycle restriction
  2-2-3-3 Operation by restriction group assigned :
    Restriction group applicable : under access cycle restriction
2-2-3-4 Operation of the PS moving from the non-restriction area to restriction area:
Restriction group applicable: No access cycle restriction (Note 1).

2-2-3-5 Operation of the PS moving from the restriction area to non-restriction area:
Restriction group applicable: No access cycle restriction (Note 1).

2-2-3-6 Operation by CS information: CS unusable (Note 1).

2-2-4 Semi-normal outgoing call operation tests
2-2-4-1 Disconnection by called party busy (on the CS side)
2-2-4-2 ID verification at link channel establishment
   — Calling station ID code does not matched up
2-2-4-3 ID verification at link channel establishment
   — Called station ID code does not match up
2-2-4-4 Modifier of synchronization burst verification at link channel establishment - modifier
   code for 1st TCH does not match up
2-2-4-5 Modifier of synchronization burst verification at 64k bit/s communication - modifier
   code for 2nd TCH does not match up (Note 2,6)
2-2-4-6 Unavailable 2nd TCH assignment at 64k bit/s communication (Note 2)
2-2-4-7 Modifier of synchronization burst verification at 64k bit/s communication - modifier
   code for 2nd TCH does not match up (Note 4,5)
2-2-4-8 Additional TCH request rejection in combination of the Two slot fixed type CS and the
   Slot changeable type PS in 64k bits/s UDI call originating (Note 4)
2-2-4-9 Additional TCH request rejection in combination of the Slot changeable type CS and
   the Two slot fixed type PS in 64k bits/s UDI call originating (Note 2,6)

2-2-5 Semi-normal incoming call operation tests
2-2-5-1 Incoming call to PS in the same paging group but different PS number.
2-2-5-2 64k bit/s UDI incoming call for a PS which does not support 64k bit/s communication
   (Note 3)
2-2-5-3 Additional TCH request rejection in combination of the Two slot fixed type CS and the
   Slot changeable type PS in 64k bits/s UDI call terminating (Note 4)
2-2-5-4 Additional TCH request rejection in combination of the Slot changeable type CS and
   the Two slot fixed type PS in 64k bits/s UDI call terminating (Note 2,6)

2-2-6 Transmission stop operation test
2-2-6-1 Transmission halt, radio channel release

2-2-7 Additional channel establishment and disconnection during the communication tests
2-2-7-1 64k bit/s UDI additional channel synchronization establishment with CS indication
   (Note 4)
2-2-7-2 64k bit/s UDI 2nd TCH disconnection with CS indication (Note 4)
2-2-7-3 64k bit/s UDI additional channel synchronization establishing with PS judgement (Note
   4)
2-2-7-4 64k bit/s UDI 2nd TCH disconnection with PS judgement (Note 4)
2-2-7-5 64k bit/s UDI additional channel synchronization establishment failure in PS
   judgement process (Note 4)
2-3 Tests for items specified in the Annex of the Standard

2-3-1 Authentication tests
2-3-2 Subscriber data write-in tests

Note 1: If the PS does not have an autonomous location registration function, this test item is not required.

Note 2: If PS is able to achieve a 64k bit/s UDI communication with using 2 TCH simultaneously, these tests are required.

Note 3: If PS is not tested by the test items marked note 2, this test is required.

Note 4: If PS is able to achieve a 64k bit/s UDI communication in the Slot changeable mode, these tests are required.

Note 5: In these tests, it is confirmed that the 64k bit/s UDI communication is achieved by using a TCH.

Note 6: In these tests, PS is set to operate the Two slot fixed type 64k bit/s UDI.

2.3.2 Basic test parameters

The connection simulator (CS) shall be used to specify the control procedure based on the following parameters. Parameters which are not described in this section or which are to be modified shall be specified for individual test items and conditions.

2.3.2.1 Basic parameters

(1) Parameters which are pre-registered in the PS prior to tests

PS-ID: 1
Operator ID code: 1
PS number: 012-345-6789
Control carrier number: 60
Country code: same value of pattern A country code in 2.3.2.2 (3)

(2) Common parameters for the entire test items

PS number: 012-345-6789
Peer party number: 098-765-4321
Control carrier number: 60

Area information:
- Standby zone selection level: 50dBµV
- Standby zone hold level: 30dBµV
- Recalling-type handover process level: 30dBµV
- Recalling-type handover destination zone selection level: 50dBµV
- TCH switching-type handover process level: 10dBµV
- Channel switching FER threshold value: 24 (decimal)
- Area information report state number: 1
Transmission power  : CS Max. 10mW  PS Rated value

Bearer capability (downlink SETUP message) : Voice and 3.1kHz audio or Unrestricted digital information
Bearer capability (uplink SETUP message) : Voice or 3.1kHz audio or Unrestricted digital information

Note 1: When selecting various levels including the "standby zone selection level", "standby zone hold level", "recalling-type handover process level", "recalling-type handover destination zone selection level", the values for these levels must be set by taking the deviation of the receive signal strength indicator accuracy for the PS into account.

When setting a level below the specified value, the input level from the CS to the PS must be at least 7dB (i.e., upper allowance +1dB) lower than the specified value.

When setting a level above the specified value, the input level from the CS to the PS must be at least 7dB (i.e., | lower allowance -1dB |) higher than the specified value.

Note 2: If each test is going by selecting bearer capability as UDI, words “converse” shall be recognized as same meaning of “communicate” and check shall be done by protocol sequence but not by transmission/reception volume using handset.

(3) Parameters specified for each test item

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator ID code</td>
<td>either 1 or 2</td>
</tr>
<tr>
<td>PS-ID</td>
<td>either 1 or 2</td>
</tr>
<tr>
<td>Paging area number</td>
<td>any of 1, 2 or 3</td>
</tr>
<tr>
<td>Additional ID</td>
<td>any of 1, 2 or 513</td>
</tr>
<tr>
<td>Control slot number</td>
<td>either 1 or 3</td>
</tr>
<tr>
<td>Communication carrier number</td>
<td>any of M, H, L</td>
</tr>
<tr>
<td>Carrier number for 23.1 MHz PS</td>
<td>M : 39, H : 77, L : 1</td>
</tr>
<tr>
<td>Carrier number for 26.1 MHz PS</td>
<td>M : 39, H : 82, L : 251</td>
</tr>
<tr>
<td>Communication slot number</td>
<td>any of 2, 3 or 4</td>
</tr>
<tr>
<td>User scrambling key</td>
<td>Must accord with the user scrambling key set value from PS (excluding &quot;0000&quot;)</td>
</tr>
<tr>
<td>BCCH</td>
<td>Radio channel information broadcasting, system information broadcasting, 2nd system information broadcasting</td>
</tr>
</tbody>
</table>

2.3.2.2 LCCH pattern

(1) Radio channel information broadcasting

The following two types of radio channel information broadcasting signals shall be used.
(2) System information broadcasting

The following seven types of system information broadcasting signals shall be used.

<table>
<thead>
<tr>
<th>Pattern no.</th>
<th>RT/MM function REQ</th>
<th>Relevant CS Available/not available</th>
<th>Restriction</th>
<th>Restriction group designation</th>
<th>Access cycle interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Omittable</td>
<td>Available</td>
<td>None</td>
<td>None</td>
<td>No restriction</td>
</tr>
<tr>
<td>B</td>
<td>Mandatory</td>
<td>Available</td>
<td>None</td>
<td>None</td>
<td>No restriction</td>
</tr>
<tr>
<td>C</td>
<td>Omittable</td>
<td>Not available</td>
<td>None</td>
<td>None</td>
<td>No restriction</td>
</tr>
<tr>
<td>D</td>
<td>Omittable</td>
<td>Available</td>
<td>Set</td>
<td>Origination restriction for group 6</td>
<td>No restriction</td>
</tr>
<tr>
<td>E</td>
<td>Omittable</td>
<td>Available</td>
<td>Set</td>
<td>Location registration/orignation restriction for group 6</td>
<td>LCCH superframe cycle x 32</td>
</tr>
<tr>
<td>F</td>
<td>Omittable</td>
<td>Available</td>
<td>Set</td>
<td>Location registration/orignation restriction for other groups than 6</td>
<td>No restriction</td>
</tr>
<tr>
<td>G</td>
<td>Omittable</td>
<td>Available</td>
<td>Set</td>
<td>Location registration restriction for group 6</td>
<td>No restriction</td>
</tr>
</tbody>
</table>

Note: Parameters which are not specified are set as default.

(3) 2nd System information broadcasting

The following two types of 2nd system information broadcasting signals shall be used.

<table>
<thead>
<tr>
<th>Pattern no.</th>
<th>Country code</th>
<th>RT / MM protocol version</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>*</td>
<td>version 3</td>
</tr>
<tr>
<td>B</td>
<td>*</td>
<td>version 3</td>
</tr>
</tbody>
</table>

* : The value for Country code can be freely decided by the PS manufacturer.

2.3.2.3 Confirmation of call quality, scramble and user scrambling

Call quality, scramble, standard user scrambling and definition information shall be checked during the compatibility tests.
• Call quality: Check that there is no abnormal audible quality while a call is in progress.
• Transmission/reception volume: Check that transmission/reception volume is normal.
• Scramble: Check for scrambling by tests using different additional IDs for the CS-ID.
• Standard user scrambling: Check that calls are set up normally for each test.
• Definition information: Check that operation based on the definition operation is performed normally.

2.3.2.4 Confirmation of authentication

Authentication random patterns must be tested for multiple values. (These values can be set freely by the PS manufacturer.)
2.3.3 Contents of tests

2.3.3.1 Contents of tests for the technical requirements for facilities

The content of tests related to the technical requirements for facilities shall be as listed below. Note that the measurement method shall be as described in the Personal Handy Phone System ARIB Standard (RCR STD-28), Chapter 7 Measurement methods.

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
<th>Specifications</th>
<th>Measurement carrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Transmission characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-1-1</td>
<td>Transmission power</td>
<td>10mW or less&lt;br&gt;Deviation: +20%/-50% of the rated value</td>
<td>L</td>
</tr>
<tr>
<td>1-1-2</td>
<td>Transient response characteristics of burst transmission</td>
<td>13µs or less, and must meet the template specifications for instantaneous power.</td>
<td>M</td>
</tr>
<tr>
<td>1-1-3</td>
<td>Frequency stability</td>
<td>Absolute accuracy ±3x10⁻⁶ or less</td>
<td>M</td>
</tr>
<tr>
<td>1-1-4</td>
<td>Modulation accuracy</td>
<td>Error 12.5% or less</td>
<td>M</td>
</tr>
<tr>
<td>1-1-5</td>
<td>Transmission rate accuracy</td>
<td>Absolute accuracy ±5x10⁻⁶ or less</td>
<td>M</td>
</tr>
<tr>
<td>1-1-6</td>
<td>Physical slot transmission condition</td>
<td>Can be used with 2nd level (44dBµV) or lower</td>
<td>M</td>
</tr>
<tr>
<td>1-1-7</td>
<td>Transmission timing</td>
<td>±1 symbol or less</td>
<td>M</td>
</tr>
<tr>
<td>1-1-8</td>
<td>Transmission jitter</td>
<td>At detection of 16 bit UW, 1/8 symbol or less</td>
<td>M</td>
</tr>
<tr>
<td>1-2</td>
<td>Reception characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2-1</td>
<td>Sensitivity</td>
<td>BER must be 1x10⁻² or less when RX level is 16dBµV.</td>
<td>M</td>
</tr>
<tr>
<td>1-2-2</td>
<td>Receive signal strength indicator accuracy</td>
<td>Absolute accuracy ±6dB (measured at 3 points: 16dBµV, 40dBµV and 60dBµV)</td>
<td>M</td>
</tr>
<tr>
<td>1-2-3</td>
<td>Bit error rate floor performance</td>
<td>BER must be 1x10⁻⁵ or less when RX level is 25dBµV.</td>
<td>M</td>
</tr>
</tbody>
</table>

Note 1: RCR STD-28, Measurement system diagram (1) shall apply to the measurement of transmission timing.

Note 2: The following measurement methods shall apply to the measurement of reception sensitivity and bit error rate floor performance.

Reception sensitivity: Measuring BER at 16dBµV
Bit error rate floor performance: Measuring BER at 25dBµV
2.3.3.2 Contents of tests for the communication control methods

The content of tests related to the communication control methods shall be as listed below:

2.3.3.2.1 Basic operation tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Item</th>
<th>Basic operation : Location registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1-1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Overview:**

- Check that the PS performs location registration when the power for the PS is turned ON or by performing the location registration procedure.

**Test conditions:**

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : M
- Communication slot number : 2

**Test procedure:**

1. Turn the power for the PS OFF.
2. Start broadcasting LCCH from the simulator.
3. Turn the power for the PS ON or perform the location registration procedure.
4. Check the location registration sequence by the simulator.

**Check items:**

- Location registration can be performed in the pre-registered operator service areas.
- The uplink LCCH transmission timing must be the uplink LCCH timing at a 5ms interval corresponding to the TDMA slot where the downlink LCCH currently in use is located.
- Check that the definition information request transmission and definition information response reception functions are OK.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-1-2</th>
<th>Item</th>
<th>Basic operation : Outgoing call</th>
</tr>
</thead>
</table>

**Overview:**

- Originate a call on the PS and check that the PS is set for the communication state.

**Test conditions:**

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : H (carriers must be different from those used for location registration)
- Communication slot number : 3 (slots must be different from those used for location registration)

**Test procedure :**

1. End location registration normally. (Paging area number : 1)
2. Originate a call on the PS.
3. Check that the call can be set up normally between the simulator handset and the PS.
   
   At this point check that normal communication are possible and the transmission/reception volume level at the both ends.
4. Check the origination sequence using the simulator.

**Check items:**

- After dialing on the PS and originating a call (En-bloc sending), check that the call can be set up and it is possible to converse with the peer party normally.

- The communication states (scramble, standard user scrambling) and transmission/reception volume must be normal.
Test no. 2-1-3 Item Basic operation : Disconnection (at PS side)

Overview:

- Check that the call can be ended normally during the call ending operation via the PS.

Test conditions:

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : H
- Communication slot number : 3

Test procedure:

1. Originate a call on the PS (as outlined in test 2-1-2) and set the PS for the communication state.

2. End the call using the PS.

3. Check that the call has ended for both the simulator handset and the PS.

4. Check that the carrier is disconnected at the PS.

5. Check that the call has ended for the PS.

6. Check the disconnection sequence for the PS on the simulator.

Check items:

- Check that the call is ended by the call ending operation via the PS and the call is disconnected.

- Check that the PS stops carrier transmission for communication.

- Check that the PS switches to the call ended state.
Test no. 2-1-4 | Item | Basic operation : Incoming call
---|---|---
**Overview:**
- Allow the PS being tested to receive a call and generate ringing tones, then check that the call can be connected using the offhook operation for the PS.

**Test conditions:**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : L (carrier number different from the one at origination)
- Communication slot number : 4 (slot number different from the one at origination)

**Test procedure :**
1. Perform location registration normally with the PS. (Paging area number :1)
2. Allow the PS to receive a call from the simulator.
3. Check that ringing tones are generated on the PS.
4. Offhook the PS.
5. Check that the call is connected and communication is enabled between the simulator handset and the PS.
6. Check the call condition and the volume level on both the simulator and the PS.
7. Check the termination sequence on the simulator.

**Check items:**
- Check that ringing tones are generated by the PS on reception of calls.
- Check that the call is connected and the PS sets for the call state using the offhook operation from PS.
- Check that the call condition and the volume level are appropriate.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-1-5</th>
<th>Item</th>
<th>Basic operation : Disconnection (at CS side)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview:</td>
<td></td>
<td></td>
<td>• Check that the call ends normally using the onhook operation via the CS while the PS is in the communication state.</td>
</tr>
<tr>
<td>Test conditions:</td>
<td></td>
<td></td>
<td>• Operator ID code : 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Paging area number : 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Additional ID : 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Radio channel information broadcasting : Pattern A</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• System information broadcasting : Pattern A</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• 2nd system information broadcasting : Pattern A</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>• Control slot number : 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Communication carrier number : L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Communication slot number : 4</td>
</tr>
<tr>
<td>Test procedure:</td>
<td></td>
<td></td>
<td>1. Originate a call on the PS (as outlined in test 2-1-4) and set the PS for the communication state.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. End the call on the CS via the simulator.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Check that the call has ended on both the simulator handset and the PS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Check that the carrier is disconnected for the PS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5. Check that the call ended at the PS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6. Check the disconnection sequence by the CS on the simulator.</td>
</tr>
<tr>
<td>Check items:</td>
<td></td>
<td></td>
<td>• Check that communication for the PS ends and the call is disconnected.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Check that the PS stops carrier transmission for communication.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Check that the PS switches to the call ended state.</td>
</tr>
<tr>
<td>Test no.</td>
<td>Item</td>
<td>Basic operation : 64k bit/s UDI outgoing call</td>
<td></td>
</tr>
<tr>
<td>---------</td>
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<td>---------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Overview:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Originate a 64k bit/s UDI call on the PS and check that PS is set for the communication state.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test conditions:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Operator ID code : 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Paging area number : 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Additional ID : 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Radio channel information broadcasting : Pattern A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• System information broadcasting : Pattern A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 2nd system information broadcasting : Pattern A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Control slot number : 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Communication carrier number : 1st TCH H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Communication slot number : 1st TCH 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Communication slot number : 2nd TCH 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test procedure :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. End location registration normally. (Paging area number : 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Originate a 64k bit/s UDI call on the PS (or other terminal equipment connected to PS).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Check that the 64k bit/s UDI call using double TCH can be set up normally between the simulator and the PS.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Check the origination sequence using the simulator.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check items:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• After dialing on the PS (or other terminal equipment connected to PS) and originating a 64k bit/s call (En-bloc sending), check that the 64k bit/s UDI call can be set up and it is possible to communicate with the peer party normally.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The communication state (scramble, standard user scrambling) must be normal.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Test no. 2-1-7 | Item: Basic operation: 64k bit/s UDI call disconnection (at PS side)

Overview:

- Check that the 64k bit/s UDI call can be ended during the call ending operation via the PS.

Test conditions:

- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: 1st TCH H
  : 2nd TCH L (or H, belongs to PS availability)
- Communication slot number: 1st TCH 2
  : 2nd TCH 3

Test procedure:

1. Originate a 64k bit/s UDI call on the PS (as outlined in test 2-1-6) and set the PS for the communication state.
2. End the call using the PS.
3. Check that the call has ended for both the simulator and the PS.
4. Check that the carriers of both 1st TCH and 2nd TCH are disconnected at the PS.
5. Check that the call has ended for the PS.
6. Check the disconnection sequence for the PS on the simulator.

Check items:

- Check that the 64k bit/s UDI call is ended by the call ending operation via the PS and the call is disconnected.
- Check that the PS stops carrier transmission (for both 1st TCH and 2nd TCH) for communication.
- Check that the PS switches to the call ended state.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-1-8</th>
<th>Item</th>
<th>Basic operation : 64k bit/s UDI incoming call</th>
</tr>
</thead>
</table>

**Overview:**
- Allow the PS being tested to receive a 64k bit/s UDI call and indicates receiving call, then check that the 64k bit/s UDI call can be connected using the communication start operation for the PS.

**Test conditions:**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH L
  : 2nd TCH H (or L, belongs to PS availability)
- Communication slot number : 1st TCH 4
  : 2nd TCH 2

**Test procedure :**

1. End location registration normally. (Paging area number : 1)
2. Allow the PS to receive a 64k bit/s UDI call from the simulator.
3. Check that receiving call indication on the PS (or other terminal equipment connected to PS).
4. Operates starting communication.
5. Check that the 64k bit/s UDI call using double TCH is connected and 64k bit/s UDI communication are enabled between the simulator and the PS.
6. Check the termination sequence on the simulator.

**Check items:**
- Check that sign of receiving call is indicated by the PS (or other terminal equipment connected to PS) on reception of calls.
- Check that the 64k bit/s UDI call is connected and PS sets for the call state and communication start operation from PS.
- The communication state (scramble, standard user scrambling) must be normal.
### Test no. 2-1-9  
**Item**: Basic operation : 64k bit/s UDI call disconnection (at CS side)

**Overview:**
- Check that the 64k bit/s call can be ended normally during the call ending operation via the CS while the PS is in the communication state.

**Test conditions:**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH L  
  : 2nd TCH H (or L, belongs to PS availability)
- Communication slot number : 1st TCH 4  
  : 2nd TCH 2

**Test procedure:**
1. Originate a 64k bit/s call on the PS (as outlined in test 2-1-8) and set the PS for the communication state.
2. End the call on the CS via the simulator.
3. Check that the call has ended for both the simulator and the PS.
4. Check that the carriers of both 1st TCH and 2nd TCH are disconnected for the PS.
5. Check that the call has ended at the PS.
6. Check the disconnection sequence by the CS on the simulator.

**Check items:**
- Check that the 64k bit/s UDI call for the PS ends and the call is disconnected.
- Check that the PS stops carrier transmission (for both 1st TCH and 2nd TCH) for communication.
- Check that the PS switches to the call ended state.
## Overview:

- Originate a 64k bit/s UDI call on the PS and check that PS is set for the communication state.

### Test conditions:

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH H
- Communication slot number : 1st TCH 2

### Test procedure:

1. End location registration normally. (Paging area number : 1)
2. Originate a 64k bit/s UDI call on the PS (or other terminal equipment connected to PS).
3. Check that the 64k bit/s UDI call using a TCH can be set up normally between the simulator and the PS.
4. Check that the 64k bit/s UDI call using a TCH can be disconnected normally in process outlined in the test 2-1-7.
5. Check the origination and disconnection sequence using the simulator.

### Check items:

- After dialing on the PS (or other terminal equipment connected to PS) and originating a 64k bit/s call (En-bloc sending), check that the 64k bit/s UDI call can be set up and it is possible to communicate with the peer party normally.

- The communication state (scramble, standard user scrambling) must be normal.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-1-11</th>
<th>Item</th>
<th>Basic operation: 64k bit/s UDI incoming call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview:</td>
<td></td>
<td></td>
<td>• Allow the PS being tested to receive a 64k bit/s UDI call and indicates receiving call, then check that the 64k bit/s UDI call using a TCH can be connected using the communication start operation for the PS.</td>
</tr>
<tr>
<td>Test conditions:</td>
<td></td>
<td></td>
<td>• Operator ID code: 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Paging area number: 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Additional ID: 1</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Radio channel information broadcasting: Pattern A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• System information broadcasting: Pattern A</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• 2nd system information broadcasting: Pattern A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Control slot number: 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Communication carrier number: 1st TCH L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Communication slot number: 1st TCH 4</td>
</tr>
<tr>
<td>Test procedure:</td>
<td></td>
<td></td>
<td>1. End location registration normally. (Paging area number: 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Allow the PS to receive a 64k bit/s UDI call from the simulator.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Check that receiving call indication on the PS (or other terminal equipment connected to PS).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Operates starting communication.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5. Check that the 64k bit/s UDI call using a TCH is connected and the slot changeable type 64k bit/s UDI communication are enabled between the simulator and the PS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6. Check that the 64k bit/s UDI call using a TCH can be disconnected normally in process outlined in the test 2-1-9.</td>
</tr>
<tr>
<td>Check items:</td>
<td></td>
<td></td>
<td>• Check that sign of receiving call is indicated by the PS (or other terminal equipment connected to PS) on reception of calls.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Check that the 64k bit/s UDI call is connected and PS sets for the call state and communication start operation from PS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• The communication state (scramble, standard user scrambling) must be normal.</td>
</tr>
</tbody>
</table>
2.3.3.2.2 Application operation tests

2.3.3.2.2.1 Location registration operation tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-1-1</th>
<th>Item</th>
<th>Application operation : Location registration; Location registration while the PS is moving between paging areas</th>
</tr>
</thead>
</table>

Overview:

- Check that the PS performs location registration when the PS moves into an area with a different paging area number.

Test conditions:

- Operator ID code: 1
- Paging area number: 1 → 2
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A → Pattern B (RT/MM function request mandatory)
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 → 3
- Communication carrier number: M
- Communication slot number: 2

Test procedure:

1. Perform location registration normally on the PS. (Paging area number: 1)
2. Set the system information broadcasting signal for paging area number “2” to “B.”
3. Set the transmission level for the broadcasting signal for paging area number “1” to below the standby zone hold level via the simulator and for paging area number “2” to above the standby zone selection level (i.e., allow the PS to move artificially).
4. Check the location registration sequence for the PS using the simulator.

Check items:

- Check that the transmission level for the area where the PS is currently located is below the standby zone hold level and the PS requests a location registration on reception of a broadcasting signal with a different paging area number.

- Set the system information broadcasting for “RT/MM function request mandatory”, then check that the PS performs the function request.
### Test no. 2-2-1-2 | Item | Application operation: Location registration; Processing after location registration fails (location registration reject: retry enable)

#### Overview:
- Check that the PS does not transmit a location registration request within the specified period of time on reception of a location registration reject (retry enable).

#### Test conditions:
- Operator ID code: 1
- Paging area number: 2 → 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern B → Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 3 → 1
- Communication carrier number: M
- Communication slot number: 2

#### Test procedure:
1. Perform location registration normally using the PS. (Paging area number: 2)
2. Set the system information broadcasting signal for paging area number "1" to "A."
3. Set the transmission level for the broadcasting signal for paging area number "2" to below the standby zone hold level using the simulator and for paging area number "1" to above the standby zone selection level (i.e., allow the PS to move artificially).
4. Check that the simulator returns a location registration reject (retry enable) in response to the location registration request from the PS.
5. Check that location registration ends normally after TM304P timer sets to time out. (The check timing must be within 200 sec. after the location registration reject.)
6. Check the location registration sequence using the simulator.

#### Check items:
- The PS must not transmit a location registration request before TM304P sets time out (i.e., within 100 sec.) on reception of the location registration reject (retry enable).
- The PS must transmit a location registration request after TM304P sets time out.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-1-3</th>
<th>Item</th>
<th>Application operation : Location registration; Processing after location registration fails (location registration reject: retry disable)</th>
</tr>
</thead>
</table>

**Overview:**
- Check that the PS does not transmit a location registration request until it switches to other zone spanning over the paging areas after receiving a location registration reject (retry disable).

**Test conditions:**
- Operator ID code : 1
- Paging area number : 1 → 3 → 2
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A → Pattern B → Pattern B
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 → 3 → 3
- Communication carrier number : M
- Communication slot number : 2

**Test procedure :**
1. Perform location registration normally using the PS. (Paging area number : 1)
2. Set the system information broadcasting signal for paging area numbers “3” to “B.”
3. Set the transmission level for the broadcasting signal for the respective paging area number “1” (slot no.1) to below the standby zone hold level via the simulator and for paging area number “3” (slot no.3) to above the standby zone selection level (i.e., permit the PS to move artificially).
4. The simulator returns a location registration reject (retry disable) in response to the location registration request from the PS.
5. Check that the PS does not transmit a location registration request for 200 sec. after a location registration reject is returned.
6. The simulator stops transmitting the broadcasting signal for paging area number “3” and increases the transmission level for paging area number “2” (slot no.3) to above the standby zone selection level.
7. Check that the PS performs location registration after the PS switches to other zone spanning over the paging areas.
8. Check the location registration sequence by the simulator.

**Check items:**
- The PS must not retry a location registration request on reception of the location registration reject (retry disable).
- The PS must transmit a location registration request when the paging area number is re-updated (by zone switching).
Test no. 2-2-1-4 Item Application operation : Location registration; Processing after location registration fails (no response from the CS side: no. of retries limited)

Overview:
- Check that the PS retries the location registration request a maximum of 3 times after it transmitted a location registration request and no response has been sent back from the network.

Test conditions:
- Operator ID code : 1
- Paging area number : 2 → 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern B → Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 3 → 1
- Communication carrier number : M
- Communication slot number : 2

Test procedure:
1. Perform location registration normally using the PS. (Paging area number :2)
2. Set the transmission level for the broadcasting signal for paging area number "2" to below the standby zone hold level via the simulator and for paging area number “1” to above the standby zone selection level (i.e., allow the PS to move artificially).
3. The simulator must not transmit a link channel assignment in response to the link channel establishment request form the PS. (The CS sends no response.)
4. Check that the number of times of link channel establishment request retries by the PS is a maximum of 3 times.
5. Check that the simulator transmits a link channel assignment in response to the link channel establishment request from the PS after the location registration restart timer sets time out. (This should be checked for 200sec. after the last retry signal is transmitted.)
6. Check the location registration sequence by the simulator.

Check items:
- The PS must transmit a location registration request when the paging area number is updated.
- The PS must not transmit a link channel establishment request within 1.2 sec (TR001P) when the PS hasn't received the link channel assignment
- The number of times of the location registration request retries by the PS must be up to 3 times.
- The PS must not restart the location registration request until the location registration restart timer sets time out (100 sec).
- The PS must transmit a location registration request after the location registration restart timer sets time out.
Test no. | 2-2-1-5 | Item | Application operation : Location registration; Transmission of link channel establishment re-request (with U wave)

Overview:

- Check that the PS transmits "link channel establishment re-request" when the carrier where the link channel is assigned is in use (with U wave).

Test conditions:

- Operator ID code : 1
- Paging area number : 1 → 2
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A → Pattern B
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 → 3
- Communication carrier number : H (with interference) → M (without interference)
- Communication slot number : 4 (with interference) → 2 (without interference)
- The signal generator in the simulator must be set so as to interfere carrier number "77".

Test procedure:

1. Perform location registration normally using the PS. (Paging area number :1)
2. Apply 45dBµV signals of carrier number "H" by the signal generator, etc.
3. Set the transmission level for the broadcasting signal for paging area number "1" to below the standby zone hold level using the simulator and for paging area number "2" to above the standby zone selection level (i.e., allow the PS to move artificially).
4. Assign carrier number "H" and slot number "4" using the simulator in response to the link channel establishment request from the PS.
5. Check that the PS transmits a link channel establishment re-request.
6. Assign the carrier number "M" and slot number "2" without U wave in response to the link channel establishment re-request from the PS.
7. Stop the signal generator to transmit the signals.
8. Check the location registration sequence by the simulator.

Check items:

- The PS must send a location registration request when the paging area number is updated.

- The PS must transmit the link channel establishment re-request when the carrier assigned by the link channel assignment is set for "with U wave".

- The PS must send a location registration request by the communication carrier without "U wave" on reception of the link channel assignment.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-1-6</th>
<th>Item</th>
<th>Application operation: Location registration; Operation when link channel assignment is rejected when all the slots are used by the CS</th>
</tr>
</thead>
</table>

**Overview:**
- When the PS receives a link channel assignment reject (CS using all slots) in response to the link channel establishment request, check that the PS does not transmit a link channel establishment re-request.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 2 → 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern B → Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 3 → 1
- Communication carrier number: —
- Communication slot number: —

**Test procedure:**
1. Perform location registration normally using the PS. (Paging area number: 2)
2. Set the transmission level for the broadcasting signal for paging area number “2” to below the standby zone hold level via the simulator and for paging area number “1” to above the standby zone selection level (i.e., allow the PS to move artificially).
3. Transmit a link channel assignment reject (CS using all slots) on the simulator in response to the link channel establishment request sent from the PS.
4. Check that the PS does not send a link channel establishment re-request before the location registration restart timer sets time out (within 100 sec).
5. Check the location registration sequence does not end normally by the simulator.

**Check items:**
- The PS must send a location registration request when the paging area number is updated.
- The PS must not transmit a link channel establishment re-request on reception of the link channel assignment reject (CS using all slots) until the location registration restart timer sets time out (i.e., 100 sec).
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-1-7</th>
<th>Item</th>
<th>Application operation: Location registration; Location registration when the PS is moving between CSs in the same paging area (location registration not performed)</th>
</tr>
</thead>
</table>

**Overview:**
- Check that the PS does not perform location registration when the PS moves into another CS zone with different additional ID in the same paging area.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 → 2
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A → Pattern B
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 → 3
- Communication carrier number: —
- Communication slot number: —

**Test procedure:**
1. Perform location registration normally using the PS. (Paging area number: 1)
2. Set the transmission level for the broadcasting signal for paging area number "1" (with additional ID "1") to below the standby zone hold level via the simulator and for paging area number "1" (with additional ID "2") to above the standby zone selection level (i.e., allow the PS to move artificially).
3. Check that the location registration sequence is not activated by the simulator. This should be checked for 200 sec. after the additional ID is updated.

**Check items:**
- The PS must not send a location registration request when the PS detects that the additional ID in the calling station ID code is updated via the broadcasting signal.
### Test no. 2-2-1-8

**Item**: Application operation: Location registration; Location registration to unregistered operators because of no coincidence with the system indication code

**Overview**:
- Check that the PS does not send a location registration request to operators where the PS is not registered.

**Test conditions**:
- **Operator ID code**: 1 → 2 (operator ID code 2 must not be registered for the PS)
  - Paging area number: 1
  - Additional ID: 2
  - Radio channel information broadcasting: Pattern A → Pattern A
  - System information broadcasting: Pattern B → Pattern A
  - 2nd system information broadcasting: Pattern A
  - Control slot number: 1 → 3
  - Communication carrier number: —
  - Communication slot number: —

**Test procedure**:
1. Perform location registration normally using the PS. (Paging area number: 1)
2. Set the transmission level for the broadcasting signal for operator ID code “1” to below the standby zone hold level and via the simulator and for operator ID code “2” to above the standby zone selection level (i.e., allow the PS to move artificially).
3. Check that the PS does not send a location registration request for 200 sec after the transmission level for the broadcasting signal is updated.
4. Check that the location registration sequence is not activated by the simulator.

**Check items**:
- The PS must not send a location registration request on reception of the broadcasting signal containing the operator ID code which is not registered for the PS.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-1-9</th>
<th>Item</th>
<th>Application operation : Location registration; Location registration to unregistered operators because of no coincidence with the country code</th>
</tr>
</thead>
</table>

**Overview:**

- Check that the PS does not send a location registration request to operators where the PS is not registered.

**Test conditions:**

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A → Pattern B
- Control slot number : 1 → 3
- Communication carrier number : M
- Communication slot number : 2

**Test procedure:**

1. Perform location registration normally using the PS. (Country code : A)

2. Set the transmission level for the broadcasting signal for Country code “A” to below the standby zone hold level and via the simulator and for Country code “B” to above the standby zone selection level (i.e., allow the PS to move artificially).

3. Check that the PS does not send a location registration request for 200 sec after the transmission level for the broadcasting signal is updated.

4. Check that the location registration sequence is not activated by the simulator.

**Check items:**

- The PS must not send a location registration request on reception of the 2nd system Information broadcasting signal containing the country code which is not registered for the PS.
Test no. 2-2-1-10 | Item Application operation: Location registration; Location registration over 2LCCH (uplink LCCH is 100ms cycle)

Overview:

- Check that the PS send a location registration request when the paging area number is updated in the 2LCCH broadcasting state.

Test conditions:

- Operator ID code: 1
- Paging area number: 1 → 2
- Additional ID: 1
- Radio channel information broadcasting: Pattern A (1LCCH) → Pattern B (2LCCH)
- System information broadcasting: Pattern A → Pattern B
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 and 3 (3: odd number group)
- Communication carrier number: M
- Communication slot number: 2

Test procedure:

1. Perform location registration normally using the PS. (Paging area number: 1)
2. Send the broadcasting signal for paging area number "2" in the 2LCCH mode via the simulator.
3. Check that the location registration is performed.
4. Originate a call from the simulator to the PS and set for the communication state, then end the call.
5. Check the location registration sequence by the simulator.

Check items:

- Check that location registration is performed and the call can be received normally in the 2LCCH broadcasting state.

- When the PS receives the updated paging area number, the PS must send a location registration request.

- The transmission timing for the uplink LCCH must be the uplink slot (at a 100ms cycle timing) which is 2.5 ms after the downlink LCCH currently in use.

- The PS must receive a call after it performs location registration.
### 2.3.3.2.2 Channel switching operation tests during communication

<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-1</th>
<th>Item</th>
<th>Application operation: Channel switching during communication with CS indication (the same CS/the same carrier/different slot)</th>
</tr>
</thead>
</table>

#### Overview:
- Check that the PS switches to the channel specified by the TCH switching indication when the PS receives it in the communication state and resumes communication.

#### Test conditions:
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: M → M (switching to)
- Communication slot number: 2 → 3 (switching to)

#### Test procedure:
1. Perform location registration normally using the PS. (Paging area number: 1)
2. Originate a call on the PS and set the communication state between the PS and the simulator.
3. Allow the simulator to send a TCH switching indication to the PS.
4. Check that the PS switches to the specified channel and resumes communication.
5. Check the sequence for the channel switching during communication via the simulator.

#### Check items:
- The PS must receive TCH switching indication containing the same CS, the same carrier and different slot.
- The PS must switch to the specified channel and resume communication.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-2</th>
<th>Item</th>
<th>Application operation : Channel switching during communication with CS indication (the same CS/different carrier and slot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Check that the PS switches to the channel specified by the TCH switching indication when the PS receives it in the communication state and resumes communication.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test conditions :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Operator ID code : 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Paging area number : 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Additional ID : 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Radio channel information broadcasting : Pattern A</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>• System information broadcasting : Pattern A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 2nd system information broadcasting : Pattern A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Control slot number : 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Communication carrier number : M → H (switching to)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Communication slot number : 3 → 4 (switching to)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test procedure :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Set the PS to the communication state (as outlined in test 2-2-2-1).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Send a TCH switching indication to the PS from the simulator.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Check that the PS switches to the specified channel and resumes communication.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Check the sequence for the channel switching during communication via the simulator.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check items:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The PS must receive TCH switching indication containing the same CS, different carrier and slot.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The PS must switch to the specified channel and resume communication.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test no.</td>
<td>2-2-2-3</td>
<td>Item</td>
<td>Application operation: Channel switching during communication with PS request (the same CS/the same carrier/different slot)</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

**Overview:**

- When slot errors exceed the channel switching FER threshold value in the communication state, check that the PS transmits a TCH switching request, then receives a TCH switching indication in return. Next, check that the PS switches to the channel according to this indication and resumes communication.

**Test conditions:**

- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: H $\rightarrow$ H (switching to)
- Communication slot number: 4 $\rightarrow$ 3 (switching to)

**Test procedure:**

1. Set the PS for the communication state (as outlined in test 2-2-2-2).
2. Set the number of slot errors which arise in the communication frame for the PS to exceed the channel switching FER threshold value via the simulator.
3. Send a TCH switching indication in response to the TCH switching request from the PS using the simulator.
4. Check that the PS switches to the specified channel and resumes communication.
5. Check the sequence for the channel switching during communication via the simulator.

**Check items:**

- The PS must send a TCH switching request when slot errors exceed the channel switching FER threshold value during communication.
- The PS must receive TCH switching indication containing the same CS, the same carrier and different slot. The PS must switch to the specified channel and resume communication.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-4</th>
<th>Item</th>
<th>Application operation : Channel switching during communication with PS request (the same CS/different carrier/different slot)</th>
</tr>
</thead>
</table>

**Overview :**

- When slot errors exceed the channel switching FER threshold value, check that the PS transmits a TCH switching request, then receives a TCH switching indication in return. Next, check that the PS switches to the channel according to this indication and resumes communication.

**Test conditions :**

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : H → M (switching to)
- Communication slot number : 3 → 2 (switching to)

**Test procedure :**

1. Set the PS for the communication state (as outlined in test 2-2-2-3).
2. Set the number of slot errors arising in the communication frame for the PS to exceed the channel switching FER threshold value via the simulator.
3. Send a TCH switching indication from the simulator in response to the TCH switching request from the PS.
4. Check that the PS switches to the specified channel and resumes communication.
5. Check the sequence for the channel switching during communication via the simulator.

**Check items :**

- The PS must transmit a TCH switching request when the number of slot errors exceeds the channel switching FER threshold value during communication.
- The PS must switch to the specified channel and resume communication on reception of a TCH switching indication containing the same CS, different carrier and different slot.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-5</th>
<th>Item</th>
<th>Application operation: Channel switching during communication with CS indication (the same CS/different carrier/different slot/switching back)</th>
</tr>
</thead>
</table>

**Overview:**
- When the PS receives a TCH switching indication in the communication state, check that the PS switches to the specified channel. However, if the PS cannot receive a synchronization burst within the specified time, check that the PS switches back to the previous channel and resumes communication.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: M → H (switching to) → M (switching back to)
- Communication slot number: 2 → 3 (switching to) → 2 (switching back to)

**Test procedure:**
1. Set the PS for the communication state (as outlined in test 2-2-2-4).
2. After the simulator transmits a TCH switching indication to the PS, check that it does not transmit a synchronization burst to the slot which the PS switches to.
3. Send a synchronization burst in the previous slot from the simulator before switching.
4. The PS must complete switching back to the previous channel after timer TR101P-1 (100ms) sets time out and resume communication.
5. Check the sequence for the channel switching during communication via the simulator.

**Check items:**
- The PS must receive a TCH switching indication containing the same CS, different carrier and different slot during communication.
- The PS must switch to the specified channel.
- The PS must switch back to the previous channel when it does not receive a downlink synchronization burst for 100ms (TR101P-1) and resume communication.
Test no. 2-2-2-6 | Item | Application operation: Channel switching during communication; Handover with CS indication (Recalling-type handover to the home CS)

Overview:
- When the PS receives a TCH switching indication which does not specify the carrier and slot numbers, specifies the home CS in the communication state check that the PS performs the recalling-type handover and resume communication.

Test conditions:
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 (No. 1), 3 (No. 2)
- Communication carrier number: M → L
- Communication slot number: 2 → 4

Test procedure:
1. Set the PS in the communication state with CS No. 1 (as outlined in test 2-2-2-5).
2. Allow the simulator to transmit the 2nd LCCH (No. 2) signal.
3. Transmit both LCCH signals No. 1 and 2 at a level higher than the recalling-type handover destination zone selection level.
4. Send a recalling-type handover request from the simulator to the home CS No. 1 in the TCH switching indication.
5. Check that the PS performs the recalling-type handover processing for the specified CS and sets for the communication state.
6. Check the sequence for the channel switching during communication via the simulator.

Check items:
- The PS must perform the recalling-type handover on reception of a TCH switching indication with home CS/without carrier and slot numbers.
- The PS must resume communication after handover.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-7</th>
<th>Item</th>
<th>Application operation : Channel switching during communication; Handover with CS indication (recalling-type handover to other CS/the same paging area)</th>
</tr>
</thead>
</table>

**Overview :**

- When the PS receives a TCH switching indication without the CS-ID information element, check that the PS performs the recalling-type handover and resumes communication.

**Test conditions :**

- Operator ID code : 1  
- Paging area number : 1  
- Additional ID : 1 (No. 1), 513 (No. 2)  
- Radio channel information broadcasting : Pattern A  
- System information broadcasting : Pattern A  
- 2nd system information broadcasting : Pattern A  
- Control slot number : 1 (No. 1), 3 (No. 2)  
- Communication carrier number : L → M (switching to)  
- Communication slot number : 4 → 2 (switching to)

**Test procedure :**

1. Set the PS in the communication state with CS No. 1 (as outlined in test 2-2-2-6).
2. The simulator continues transmitting two broadcasting signals No. 1 and 2.
3. Set the broadcasting signal No. 1 to below the recalling-type handover destination zone selection level and No. 2 to above.
4. Send a recalling-type handover indication from the simulator to the PS in a TCH switching indication.
5. Check that the PS activates the recalling-type handover processing for CS No. 2 and sets for the communication state with CS No. 2.
6. Check the sequence for the channel switching during communication via the simulator.

**Check items :**

- The PS must perform the recalling-type handover on reception of a TCH switching indication which does not contain the CS-ID information element.
- The appropriate state for the PS after handover is communication state (scramble, standard encryption).
## Test no. 2-2-8

| Item | Application operation: Channel switching during communication (Handover with PS judgment; Recalling-type handover to different CS/the same paging area) |

### Overview:
- When the reception level for the communication carrier decreases below the recalling-type handover process level, check that the PS hands over to other CS.

### Test conditions:
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 513 (No. 2), 1 (No. 1)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 3 (No. 2), 1 (No. 1)
- Communication carrier number: M → M (switching to)
- Communication slot number: 2 → 4 (switching to)

### Test procedure
1. Set the PS in the communication state (as outlined in test 2-2-2-7).
2. Broadcast LCCH No. 1 and 2 at a level higher than the recalling-type handover destination zone selection level.
3. Set LCCH No. 2 (slot no. 3) to below the recalling-type handover destination zone selection level and the transmission level for slot no. 2 during communication to below the recalling-type handover process level via the simulator.
4. Check that the PS activates the recalling-type handover to other CS (No. 1) in the same paging area.
5. Check that the PS resumes communication.
6. Check the sequence for the recalling-type handover via the simulator.

### Check items:
- When the reception level for the communication carrier becomes lower than the recalling-type handover process level during communication, the PS must handover to other CS with the same paging area number.
- The PS must resume communication after handover.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-9</th>
<th>Item</th>
<th>Application operation: Channel switching during communication (Handover with CS indication; Recalling-type handover to different CS/the same paging area) (switching back)</th>
</tr>
</thead>
</table>

**Overview:**
- Check that the PS performs handover on reception of a TCH switching indication during communication. Also check that the PS switches back to the previous CS and resumes communication if the PS has not received the link channel assignment within the specified period of time.

**Test conditions:**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1(No. 1), 513 (No. 2)
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 (No. 1), 3 (No. 2)
- Communication carrier number : M → M (switching back to)
- Communication slot number : 4 → 4 (switching back to)

**Test procedure**
1. Set the PS in the communication state (as outlined in test 2-2-2-8).
2. Set the broadcasting signal transmission level for LCCH No. 1 (slot no. 1) to below the recalling-type handover destination zone selection level and the transmission level for LCCH No. 2 (slot no. 3) to above the recalling-type handover process level via the simulator.
3. Send the recalling-type handover request in a TCH switching indication from the simulator to the PS.
4. The simulator does not send a link channel assignment in response to the link channel establishment request.
5. Check that the PS switches back to the previous CS and resumes communication.
6. Check the sequence for the recalling-type handover via the simulator.

**Check items:**
- When the PS receives a TCH switching indication which does not include the CS-ID information element, the PS must initiate the recalling-type handover. (TR105P starts.)
- When the TR105P sets time out (after 6 sec.), the PS must switch back to the previous CS.
- After the PS switches back to the previous CS, the PS must resume communication.
Test no. 2-2-2-10 | Application operation : Channel switching during communication (Handover with PS judgment; Recalling-type handover to different CS/other paging area)

Overview :
- When the PS receives signals below the recalling-type handover process level during communication, check that the PS hands over to other CS. After the call ends, check that the PS performs location registration.

Test conditions :
- Operator ID code : 1
- Paging area number : 1(No. 1), 2 (No. 2)
- Additional ID : 1(No. 1), 1 (No. 2)
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern B (with RT/MM function request)
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 (No. 1), 3 (No. 2)
- Communication carrier number : M → L (switching to)
- Communication slot number : 2 → 2 (switching to)

Test procedure :
1. Set the PS in the standby state. (Paging area number : 1)
2. Originate a call on the PS and set the PS for the communication state with CS No. 1.
3. Transmit LCCH No. 2 at a level above the recalling-type handover destination zone selection level.
4. Set the transmission level for LCCH No. 1 to below the recalling-type handover destination zone selection level and the transmission level for slot no.2 during communication to below the recalling-type handover process level.
5. The PS activates the recalling-type handover to capture LCCH No. 2.
6. After making sure that the PS resumes communication, end the call with the PS.
7. After the call has ended, check that the PS performs location registration with CS No. 2.
8. Check the sequences for the recalling-type handover and location registration via the simulator.

Check items :
- If the reception level for the current communication carrier is below the recalling-type handover process level while the PS is in the communication state, the PS must capture the LCCH with other paging area number.
- The PS must initiate the recalling-type handover and resumes communication.
- After the call has ended, the PS must perform location registration.
Test no. | 2-2-2-11 | Item | Application operation : 64k bit/s UDI channel switching during communication with CS indication (the same CS/1st TCH)

Overview :
- Check that the PS switches the 1st TCH to the channel specified by the TCH switching indication when PS receives it in 64k bit/s UDI communication state and resume communication.

Test conditions :
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH M→H (or M, belongs to PS availability) : 2nd TCH M
- Communication slot number : 1st TCH 2→4 : 2nd TCH 3

Test procedure :
1. Perform location registration normally using the PS (Paging area number : 1).
2. Originate a 64k bit/s UDI call on the PS and set the 64k bit/s UDI communication state between the simulator and the PS.
3. Allow the simulator to send a TCH switching indication on 1st TCH to the PS.
4. Check that the PS switches the 1st TCH to the channel specified by the TCH switching indication and resume 64k bit/s UDI communication.
5. Check the sequence for the channel switching during communication via the simulator.

Check items :
- The PS must receive TCH switching indication containing the same CS on 1st TCH.
- 1st TCH must be switched to the channel specified by the TCH switching indication and 64k bit/s UDI communication must be resumed.
- 2nd TCH must not be changed during the channel switching operation of 1st TCH.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-12</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI channel switching during communication with CS indication (the same CS/2nd TCH)</th>
</tr>
</thead>
</table>

**Overview :**
- Check that the PS switches the 2nd TCH to the channel specified by the TCH switching indication when PS receives it in 64k bit/s UDI communication state and resume communication.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH H (or M, belongs to PS availability) → 2nd TCH M→L (or M, belongs to PS availability)
- Communication slot number : 1st TCH 4 → 2nd TCH 3→2

**Test procedure :**
1. Set the PS to the 64k bit/s UDI communication state (as outlined in test 2-2-2-11).
2. Allow the simulator to send a TCH switching indication on 2nd TCH to the PS.
3. Check that the PS switches the 2nd TCH to the channel specified by the TCH switching indication and resume 64k bit/s UDI communication.
4. Check the sequence for the channel switching during communication via the simulator.

**Check items :**
- The PS must receive TCH switching indication containing the same CS on 2nd TCH.
- 2nd TCH must be switched to the channel specified by the TCH switching indication and 64k bit/s UDI communication must be resumed.
- 1st TCH must not be changed during the channel switching operation of 2nd TCH.
**Test no.** | **2-2-2-13** | **Item** | **Application operation : 64k bit/s UDI channel switching during communication with PS request (the same CS/1st TCH)**
---|---|---|---

**Overview :**
- When slot errors of 1st TCH exceed the channel switching FER threshold value in the 64k bit/s UDI communication state, check that the PS transmits a TCH switching request on 1st TCH, then receives a TCH switching indication in return. Next, check that the PS switches the 1st TCH to the channel according to this indication and resume communication.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH H (or M, belongs to PS availability) → M : 2nd TCH L (or M, belongs to PS availability)
- Communication slot number : 1st TCH 4→3 : 2nd TCH 2

**Test procedure :**
1. Set the PS to the 64k bit/s UDI communication state (as outlined in test 2-2-2-12).
2. Set the numbers of slot errors of 1st TCH which arise in the communication frame for the PS to exceed the channel switching FER threshold value via the simulator.
3. Send a TCH switching indication using the simulator in response to the TCH switching request on 1st TCH from the PS.
4. Check that the PS switches the 1st TCH to the channel specified by the TCH switching indication and resume 64k bit/s UDI communication.
5. Check the sequence for the channel switching during communication via the simulator.

**Check items :**
- The PS must send a TCH switching request on 1st TCH when slot errors of 1st TCH exceed the channel switching FER threshold value during 64k bit/s communication.
- The PS must receive TCH switching indication containing the same CS on 1st TCH and 1st TCH must be switched to the channel specified by the TCH switching indication and 64k bit/s UDI communication must be resumed.
- 2nd TCH must not be changed during the channel switching operation of 1st TCH.
Test no. | 2-2-2-14 | Item | Application operation : 64k bit/s UDI channel switching during communication with PS request (the same CS/2nd TCH)

**Overview :**
- When slot errors of 2nd TCH exceed the channel switching FER threshold value in the 64k bit/s UDI communication state, check that the PS transmits a TCH switching request on 2nd TCH, then receives a TCH switching indication in return. Next, check that the PS switches the 2nd TCH to the channel according to this indication and resume communication.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH M → 2nd TCH L (or M, belongs to PS availability) → M
- Communication slot number : 1st TCH 3 → 2nd TCH 2 → 4

**Test procedure :**
1. Set the PS to the 64k bit/s UDI communication state (as outlined in test 2-2-2-13).
2. Set the numbers of slot errors of 2nd TCH which arise in the communication frame for the PS to exceed the channel switching FER threshold value via the simulator.
3. Send a TCH switching indication using the simulator in response to the TCH switching request on 2nd TCH from the PS.
4. Check that the PS switches the 2nd TCH to the channel specified by the TCH switching indication and resume 64k bit/s UDI communication.
5. Check the sequence for the channel switching during communication via the simulator.

**Check items :**
- The PS must send a TCH switching request on 2nd TCH when slot errors of 2nd TCH exceed the channel switching FER threshold value during 64k bit/s communication.
- The PS must receive TCH switching indication containing the same CS on 2nd TCH and 2nd TCH must be switched to the channel specified by the TCH switching indication and 64k bit/s UDI communication must be resumed.
- 1st TCH must not be changed during the channel switching operation of 2nd TCH.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-15</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI channel switching during communication with CS indication (the same CS/1st TCH/switching back)</th>
</tr>
</thead>
</table>

**Overview :**
- When the PS receives a TCH switching indication on 1st TCH in 64k bit/s UDI communication state, check that the PS switches the 1st TCH to the specified channel. However, if the PS cannot receive a synchronization burst within the specified time, check that the PS switches 1st TCH back to the previous channel and resumes communication.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH M→H (switching to)→M (switching back to) : 2nd TCH M
- Communication slot number : 1st TCH 3→2 (switching to)→3 (switching back to) : 2nd TCH 4

**Test procedure :**
1. Set the PS to the 64k bit/s UDI communication state (as outlined in test 2-2-2-14).
2. After the simulator transmits a TCH switching indication on 1st TCH to the PS, check that it does not transmit a synchronization burst to the slot which the PS switches to.
3. Send a synchronization burst in the previous 1st TCH slot from the simulator before a switching.
4. PS must complete switching back to the previous channel after timer TR101P-1 (100 ms) expires and resume 64k bit/s UDI communication.
5. Check the sequence for the channel switching during communication via the simulator.

**Check items :**
- The PS must receive TCH switching indication containing the same CS on 1st TCH.
- The PS must switch 1st TCH to the specified channel.
- The PS must switch 1st TCH back to the previous channel when it does not receive a downlink synchronization burst for 100 ms (TR101P-1) and resume 64k bit/s UDI communication.
- 2nd TCH must not be changed during the channel switching operation of 1st TCH.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-16</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI channel switching during communication with CS indication (the same CS/2nd TCH/switching back)</th>
</tr>
</thead>
</table>

**Overview :**
- When the PS receives a TCH switching indication on 2nd TCH in 64k bit/s UDI communication state, check that the PS switches the 2nd TCH to the specified channel. However, if the PS cannot receive a 2nd synchronization burst within the specified time, check that the PS switches 2nd TCH back to the previous channel and resume communication.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH M → 2nd TCH M (switching to) → M (switching back to)
- Communication slot number : 1st TCH 3 → 2nd TCH 4 → 2 (switching to) → 4 (switching back to)

**Test procedure :**
1. Set the PS to the 64k bit/s UDI communication state (as outlined in test 2-2-2-15).
2. After the simulator transmits a TCH switching indication on 2nd TCH to the PS, check that it does not transmit a 2nd synchronization burst to the slot which the PS switches to.
3. Send a 2nd synchronization burst in the previous 2nd TCH slot from the simulator before a switching.
4. PS must complete switching back to the previous channel after timer TR101P-1 (100 ms) expires and resume 64k bit/s UDI communication.
5. Check the sequence for the channel switching during communication via the simulator.

**Check items :**
- The PS must receive TCH switching indication containing the same CS on 2nd TCH.
- The PS must switch 2nd TCH to the specified channel.
- The PS must switch 2nd TCH back to the previous channel when it does not receive a downlink 2nd synchronization burst for 100 ms (TR101P-1) and resume 64k bit/s UDI communication.
- 1st TCH must not be changed during the channel switching operation of 2nd TCH.
Test no. 2-2-17 | Item | Application operation: 64k bit/s UDI channel switching during communication; Handover with CS indication (Recalling type handover to the home CS/1st TCH)

Overview:
- When the PS receives a TCH switching indication on 1st TCH including information of the home CS-ID to switch to and without information of carriers nor slot numbers in the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover to the home CS and resume communication.

Test conditions:
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 (No. 1) 2 (No. 2)
- Communication carrier number: 1st TCH M → L
  2nd TCH M → H (or L, belongs to PS availability)
- Communication slot number: 1st TCH 3 → 4
  2nd TCH 4 → 3

Test procedure:
1. Originate a 64k bit/s UDI call on the PS and set the 64k bit/s UDI communication state between the simulator (CS No. 1) and the PS.
2. Allow the simulator to transmit the 2nd LCCH (CS No. 2) signal.
3. Transmit both LCCH signals No. 1 and 2 at a level higher than recalling-type handover destination zone selection level.
4. Send a TCH switching indication on 1st TCH which specifies recalling-type handover to the home CS from the simulator.
5. Check that the PS performs the recalling-type handover processing for the specified CS and sets for the 64k bit/s UDI communication state.
6. Check the sequence for the recalling-type handover via the simulator.

Check items:
- The PS must perform the recalling-type handover on reception of a TCH switching indication with home CS/without carriers and slot numbers on 1st TCH.
- The PS must resume communication after handover.
### Test no. 2-2-2-18

**Item**

Application operation: 64k bit/s UDI channel switching during communication; Handover with CS indication (Recalling type handover to the home CS/2nd TCH)

### Overview:

- When the PS receives a TCH switching indication on 2nd TCH including information of the home CS-ID to switch to and without information of carriers nor slot numbers in the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover to the home CS and resume communication.

### Test conditions:

- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 (No. 1) 2 (No. 2)
- Communication carrier number: 1st TCH L → M
  - 2nd TCH H (or L, belongs to PS availability) → M
- Communication slot number: 1st TCH 4 → 3
  - 2nd TCH 3 → 4

### Test procedure:

1. Set the PS to the 64k bit/s UDI communication state with CS No. 1 (as outlined in test 2-2-2-17).

2. Allow the simulator to transmit the 2nd LCCH (CS No. 2) signal.

3. Transmit both LCCH signals No. 1 and 2 at a level higher than recalling-type handover destination zone selection level.

4. Send a TCH switching indication on 2nd TCH which specifies recalling-type handover to the home CS from the simulator.

5. Check that the PS performs the recalling-type handover processing for the specified CS and sets for the 64k bit/s UDI communication state.

6. Check the sequence for the recalling-type handover via the simulator.

### Check items:

- The PS must perform the recalling-type handover on reception of a TCH switching indication with home CS/without carriers and slot numbers on 2nd TCH.

- The PS must resume communication after handover.
Test no. | 2-2-2-19 | Item | Application operation: 64k bit/s UDI channel switching during communication; Handover with CS indication (Recalling type handover to other CS/the same paging area/1st TCH)

Overview:
- When the PS receives a TCH switching indication on 1st TCH without the CS-ID information element in the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover and resume communication.

Test conditions:
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 (No. 1) 2 (No. 2)
- Communication carrier number: 1st TCH M → L (switching to)
  : 2nd TCH M → L (switching to)
- Communication slot number: 1st TCH 3 → 3
  : 2nd TCH 4 → 4

Test procedure:
1. Set the PS to the 64k bit/s UDI communication state with CS No. 1 (as outlined in test 2-2-2-18).
2. The simulator continues transmitting two LCCH (CS No. 1 and No. 2) signal.
3. Set the LCCH (CS No. 1) to below the recalling-type handover destination zone selection level and LCCH (CS No. 2) to above.
4. Send to the PS a TCH switching indication on 1st TCH without CS-ID information element (recalling-type handover indication) from the simulator.
5. Check that the PS performs the recalling-type handover processing for CS No. 2 and sets for the 64k bit/s UDI communication state with CS No. 2.
6. Check the sequence for the recalling-type handover via the simulator.

Check items:
- The PS must perform the recalling-type handover on reception of a TCH switching indication which does not contain the CS-ID information element on 1st TCH.
- The communication state (scramble, standard user scrambling) after handover must be normal.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-20</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI channel switching during communication ; Handover with CS indication (Recalling type handover to other CS/the same paging area/2nd TCH)</th>
</tr>
</thead>
</table>

**Overview :**
- When the PS receives a TCH switching indication on 2nd TCH without the CS-ID information element in the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover and resume communication.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 (No. 1) 2 (No. 2)
- Communication carrier number : 1st TCH L → M (switching to) 2nd TCH L → M (switching to)
- Communication slot number : 1st TCH 3 → 4 2nd TCH 4 → 3

**Test procedure :**
1. Set the PS to the 64k bit/s UDI communication state with CS No. 2 (as outlined in test 2-2-2-19).
2. The simulator continues transmitting two LCCH (CS No. 1 and No. 2) signal.
3. Set the LCCH (CS No. 2) to below the recalling-type handover destination zone selection level and LCCH (CS No. 1) to above.
4. Send to the PS a TCH switching indication on 2nd TCH without CS-ID information element (recalling-type handover indication) from the simulator.
5. Check that the PS performs the recalling-type handover processing for CS No. 1 and sets for the 64k bit/s UDI communication state with CS No. 1.
6. Check the sequence for the recalling-type handover via the simulator.

**Check items :**
- The PS must perform the recalling-type handover on reception of a TCH switching indication which does not contain the CS-ID information element on 2nd TCH.
- The communication state (scramble, standard user scrambling) after handover must be normal.
Test no. 2-2-2-21 | Item | Application operation: 64k bit/s UDI channel switching during communication; Handover with PS judgment (Recalling type handover to other CS/the same paging area)

Overview:
- When the reception level for the communication carriers decrease below the recalling-type handover process level during the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover and resume communication.

Test conditions:
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 (No. 1) 2 (No. 2)
- Communication carrier number: 1st TCH M → M (switching to) 2nd TCH M → M (switching to)
- Communication slot number: 1st TCH 4 → 3 2nd TCH 3 → 4

Test procedure:
1. Set the PS to the 64k bit/s UDI communication state with CS No. 1 (as outlined in test 2-2-2-20).
2. The simulator transmits two LCCH (CS No. 1 and No. 2) signals at a level higher than the recalling-type handover destination zone selection level.
3. Set the LCCH (CS No. 1) to below the recalling-type handover destination zone selection level and the transmission level for both communication slots (slot number 3 & 4) to below the recalling-type handover process level via simulator.
4. Check that the PS activates the recalling-type handover to other CS (No. 2) in the same paging area.
5. Check that the PS resumes 64k bit/s UDI communication state with CS No. 2.
6. Check the sequence for the recalling-type handover via the simulator.

Check items:
- When the reception level for the communication carriers become lower than the recalling-type handover process level during the 64k bit/s UDI communication, the PS must handover to other CS in the same paging area.
- The communication state (scramble, standard user scrambling) after handover must be normal.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-22</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI channel switching during communication (Handover with CS indication; recalling-type to other CS/the same paging area/switching back cause of 1st TCH)</th>
</tr>
</thead>
</table>

**Overview :**
- Check that the PS performs handover on reception of a TCH switching indication during 64k bit/s UDI communication. Also check that the PS switches back to the previous CS and resumes communication if the PS has not received the link channel assignment within the specified period of time.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 (No. 1) 2 (No. 2)
- Communication carrier number : 1st TCH M → M (switching back to) 2nd TCH M → M (switching back to)
- Communication slot number : 1st TCH 3 → 3 (switching back to) 2nd TCH 4 → 4 (switching back to)

**Test procedure :**
1. Set the PS to the 64k bit/s UDI communication state (as outlined in test 2-2-2-21).
2. Set the LCCH of CS No. 2 (slot number 2) to below the recalling-type handover destination zone selection level and the transmission level for LCCH of CS No. 1 (slot number 1) to above the recalling-type handover process level via simulator.
3. Send the recalling-type handover request in a TCH switching indication on 1st TCH from the simulator.
4. The simulator does not send a link channel assignment in response to the link channel establish request.
5. Check that the PS switches back to the previous CS and resume 64k bit/s UDI communication.
6. Check the sequence for the recalling-type handover via the simulator.

**Check items :**
- When the PS receives a TCH switching indication which does not include the CS-ID information element, the PS must perform the recalling-type handover. (TR105P starts.)
- When the TR105P expires (after 6 sec.), the PS must switch back to the previous CS.
- After the PS switches back to the previous CS, the PS must resume 64k bit/s UDI communication.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-23</th>
<th>Item</th>
<th>Application operation: 64k bit/s UDI channel switching during communication (Handover with CS indication; recalling-type to other CS/the same paging area/switching back cause of 2nd TCH)</th>
</tr>
</thead>
</table>

**Overview:**
- Check that the PS performs handover on reception of a TCH switching indication during 64k bit/s UDI communication. Also check that the PS switches back to the previous CS and resumes communication if the PS has received the additional channel request reject message in response of additional channel request.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 (No. 1) 2 (No. 2)
- Communication carrier number: 1st TCH M → M (switching to) → M (switching back to)
- Communication slot number: 1st TCH 3 → 4 (switching to) 3 (switching back to)

**Test procedure:**
1. Set the PS to the 64k bit/s UDI communication state (as outlined in test 2-2-2-22).
2. Set the LCCH of CS No. 2 (slot number 2) to below the recalling-type handover destination zone selection level and the transmission level for LCCH of CS No. 1 (slot number 1) to above the recalling-type handover process level via simulator.
3. Send the recalling-type handover request in a TCH switching indication on 2nd TCH from the simulator.
4. The simulator sends the additional channel request reject message in response to the additional channel request after 1st TCH established.
5. Check that the PS switches back to the previous CS and resume 64k bit/s UDI communication.
6. Check the sequence for the recalling-type handover via the simulator.

**Check items:**
- When the PS receives a TCH switching indication which does not include the CS-ID information element, the PS must perform the recalling-type handover.
- When the PS receives additional channel request reject message, the PS must switch back to the previous CS.
- After the PS switches back to the previous CS, the PS must resume 64k bit/s UDI communication.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application operation :</td>
<td>64k bit/s UDI channel switching during communication ; Handover with PS judgment (Recalling type handover to other CS/other paging area)</td>
</tr>
</tbody>
</table>

**Overview :**
- When the reception level for the communication carriers decrease below the recalling-type handover process level during the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover to other CS of other paging area. After the call ends, check that the PS performs location registration.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1 (No. 1), 2 (No. 2)
- Additional ID : 1 (No. 1), 1 (No. 2)
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern B (with RT/MM function request)
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 (No. 1) 3 (No. 2)
- Communication carrier number : 1st TCH L $\rightarrow$ H (switching to) 
  : 2nd TCH H $\rightarrow$ L (switching to)
- Communication slot number : 1st TCH 2 $\rightarrow$ 2 (switching to) 
  : 2nd TCH 4 $\rightarrow$ 4 (switching to)

**Test procedure :**
1. Perform location registration normally using the PS (Paging area number : 1).
2. Originate a 64k bit/s UDI call on the PS and set the 64k bit/s UDI communication state between the CS No. 1 and the PS.
3. Transmit LCCH (CS No. 2) at a level above the recalling-type handover destination zone selection level.
4. Set the transmit level of LCCH (CS No. 1) to below the recalling-type handover destination zone selection level and the transmission level for both communication slots (slot number 2 & 4) to below the recalling-type handover process level via simulator.
5. Check that the PS activates the recalling-type handover to other CS (No. 2) in other paging area after capturing LCCH (CS No. 2).
6. Check that the PS resumes 64k bit/s UDI communication state with CS No. 2 and after that end the communication with the PS.
7. After the communication has ended, check that the PS performs location registration with CS No. 2.
8. Check the sequence for the recalling-type handover and location registration via the simulator.

**Check items :**
- When the reception level for the communication carriers become lower than the recalling-type handover process level during the 64k bit/s communication, the PS must capture the LCCH with other paging area.
- The PS must activate handover to other CS in other paging area and resumes communication.
- After the communication has ended, the PS must perform location registration.
### Test no. 2-2-25  
**Item** Application operation: 64k bit/s UDI channel switching during communication; Handover with CS indication (Recalling type handover to the home CS/1st TCH)

**Overview:**
- When the PS receives a TCH switching indication on 1st TCH including information of the home CS-ID to switch to and without information of carriers nor slot numbers in the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover to the home CS and resume 64k bit/s UDI communication using a TCH.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 (No. 1) 2 (No. 2)
- Communication carrier number: 1st TCH M → L  
  2nd TCH M → No assignment
- Communication slot number: 1st TCH 3 → 4  
  2nd TCH 4 → No assignment

**Test procedure:**
1. Originate a 64k bit/s UDI call on the PS and set the 64k bit/s UDI communication state between the simulator (CS No. 1) and the PS.
2. Allow the simulator to transmit the 2nd LCCH (CS No. 2) signal.
3. Transmit both LCCH signals No. 1 and 2 at a level higher than recalling-type handover destination zone selection level.
4. Send a TCH switching indication on 1st TCH which specifies recalling-type handover to the home CS from the simulator.
5. Check that the PS performs the recalling-type handover processing for the specified CS and sets for the 64k bit/s UDI communication state using a TCH.
6. Check the sequence for the recalling-type handover via the simulator.

**Check items:**
- The PS must perform the recalling-type handover on reception of a TCH switching indication with home CS/without carriers and slot numbers on 1st TCH.
- The PS must resume communication after handover.
Test no. 2-2-26  
Item  Application operation: 64k bit/s UDI channel switching during communication; Handover with CS indication (Recalling type handover to the home CS/2nd TCH)

Overview:
- When the PS receives a TCH switching indication on 2nd TCH including information of the home CS-ID to switch to and without information of carriers nor slot numbers in the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover to the home CS and resume 64k bit/s UDI communication using a TCH.

Test conditions:
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1 (No. 1) 2 (No. 2)
- Communication carrier number: 1st TCH L→M
  - 2nd TCH H (or L, belongs to PS availability)
  - No assignment
- Communication slot number: 1st TCH 4→3
  - 2nd TCH 3→No Assignment

Test procedure:
1. Set the PS to the 64k bit/s UDI communication state with CS No. 1.
2. Allow the simulator to transmit the 2nd LCCH (CS No. 2) signal.
3. Transmit both LCCH signals No. 1 and 2 at a level higher than recalling-type handover destination zone selection level.
4. Send a TCH switching indication on 2nd TCH which specifies recalling-type handover to the home CS from the simulator.
5. Check that the PS performs the recalling-type handover processing for the specified CS and sets for the 64k bit/s UDI communication using a TCH.
6. Check the sequence for the recalling-type handover via the simulator.

Check items:
- The PS must perform the recalling-type handover on reception of a TCH switching indication with home CS/without carriers and slot numbers on 2nd TCH.
- The PS must resume communication after handover.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-27</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI channel switching during communication ; Handover with CS indication (Recalling type handover to other CS/the same paging area/1st TCH)</th>
</tr>
</thead>
</table>

**Overview :**
- When the PS receives a TCH switching indication on 1st TCH without the CS-ID information element in the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover and resume 64k bit/s UDI communication using a TCH.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 (No. 1) 2 (No. 2)
- Communication carrier number : 1st TCH M → L (switching to) 2nd TCH M → No assignment
- Communication slot number : 1st TCH 3 → 3 2nd TCH 4 → No assignment

**Test procedure :**
1. Set the PS to the 64k bit/s UDI communication state with CS No. 1.
2. The simulator transmits two LCCH (CS No. 1 and No. 2) signal.
3. Set the LCCH (CS No. 1) to below the recalling-type handover destination zone selection level and LCCH (CS No. 2) to above.
4. Send to the PS a TCH switching indication on 1st TCH without CS-ID information element (recalling-type handover indication) from the simulator.
5. Check that the PS performs the recalling-type handover processing for CS No. 2 and sets for the 64k bit/s UDI communication state using a TCH with CS No. 2.
6. Check the sequence for the recalling-type handover via the simulator.

**Check items :**
- The PS must perform the recalling-type handover on reception of a TCH switching indication which does not contain the CS-ID information element on 1st TCH.
- The communication state (scramble, standard user scrambling) after handover must be normal.
Test no. 2-2-2-28  Item  Application operation : 64k bit/s UDI channel switching during communication ; Handover with CS indication (Recalling type handover to other CS/the same paging area/2nd TCH)

Overview :
- When the PS receives a TCH switching indication on 2nd TCH without the CS-ID information element in the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover and resume 64k bit/s UDI communication using a TCH.

Test conditions :
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 513 (No. 2)
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 (No. 1) 2 (No. 2)
- Communication carrier number : 1st TCH L → M (switching to) 2nd TCH L → No assignment
- Communication slot number : 1st TCH 3 → 4 2nd TCH 4 → No assignment

Test procedure :
1. Set the PS to the 64k bit/s UDI communication state with CS No. 1.
2. The simulator transmits two LCCH (CS No. 1 and No. 2) signal.
3. Set the LCCH (CS No. 1) to below the recalling-type handover destination zone selection level and LCCH (CS No. 2) to above.
4. Send to the PS a TCH switching indication on 2nd TCH without CS-ID information element (recalling-type handover indication) from the simulator.
5. Check that the PS performs the recalling-type handover processing for CS No. 2 and sets for the 64k bit/s UDI communication state using a TCH with CS No. 2.
6. Check the sequence for the recalling-type handover via the simulator.

Check items :
- The PS must perform the recalling-type handover on reception of a TCH switching indication which does not contain the CS-ID information element on 2nd TCH.
- The communication state (scramble, standard user scrambling) after handover must be normal.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-2-29</th>
<th>Item</th>
<th>Application operation: 64k bit/s UDI channel switching during communication; Handover with PS judgment (Recalling type handover to other CS/the same paging area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview:</td>
<td>• When the reception level for the communication carriers decrease below the recalling-type handover process level during the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover and resume 64k bit/s UDI communication using a TCH.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Test conditions: | • Operator ID code : 1  
• Paging area number : 1  
• Additional ID : 1 (No. 1), 513 (No. 2)  
• Radio channel information broadcasting : Pattern A  
• System information broadcasting : Pattern A  
• 2nd system information broadcasting : Pattern A  
• Control slot number : 1 (No. 1) 2 (No. 2)  
• Communication carrier number : 1st TCH M → M (switching to)  
• Communication slot number : 1st TCH 4 → 3  
• Communication slot number : 2nd TCH 3 → No assignment |
| Test procedure: | 1. Set the PS to the 64k bit/s UDI communication state with CS No. 1.  
2. The simulator transmits two LCCH (CS No. 1 and No. 2) signals at a level higher than the recalling-type handover destination zone selection level.  
3. Set the LCCH (CS No. 1) to below the recalling-type handover destination zone selection level and the transmission level for both communication slots (slot number 3 & 4) to below the recalling-type handover process level via simulator.  
4. Check that the PS activates the recalling-type handover to other CS (No. 2) in the same paging area.  
5. Check that the PS resumes 64k bit/s UDI communication state using a TCH with CS No. 2.  
6. Check the sequence for the recalling-type handover via the simulator. |
| Check items: | • When the reception level for the communication carriers become lower than the recalling-type handover process level during the 64k bit/s UDI communication, the PS must handover to other CS in the same paging area.  
• The communication state (scramble, standard user scrambling) after handover must be normal. |
Test no. 2-2-2-30  
Item Application operation : 64k bit/s UDI channel switching during communication (Handover with CS indication ; recalling-type to other CS/the same paging area/switching back cause of 1st TCH)

Overview :
• Check that the PS performs handover on reception of a TCH switching indication during 64k bit/s UDI communication. Also check that the PS switches back to the previous CS and resume 64k bit/s UDI communication in using a TCH if the PS has not received the link channel assignment within the specified period of time and synchronization of previous 2nd TCH cannot be established.

Test conditions :
• Operator ID code : 1
• Paging area number : 1
• Additional ID : 1 (No. 1), 513 (No. 2)
• Radio channel information broadcasting : Pattern A
• System information broadcasting : Pattern A
• 2nd system information broadcasting : Pattern A
• Control slot number : 1 (No. 1) 2 (No. 2)
• Communication carrier number : 1st TCH M → M (switching back to)  
  : 2nd TCH M → No assignment
• Communication slot number : 1st TCH 3 → 3 (switching back to)  
  : 2nd TCH 4 → No assignment

Test procedure :
1. Set the PS to the 64k bit/s UDI communication state.
2. Set the LCCH of CS No. 1 (slot number 1) to below the recalling-type handover destination zone selection level and the transmission level for LCCH of CS No. 2 (slot number 2) to above the recalling-type handover process level via simulator.
3. Send the recalling-type handover request in a TCH switching indication on 1st TCH from the simulator.
4. The simulator does not send a link channel assignment in response to the link channel establish request.
5. Check that the PS switches back to the previous CS and resume 64k bit/s UDI communication using a TCH after TR101P-1 timer of 2nd TCH expires and synchronization of previous 2nd TCH cannot be established.
6. Check the sequence for the recalling-type handover via the simulator.

Check items :
• When the PS receives a TCH switching indication which does not include the CS-ID information element, the PS must perform the recalling-type handover. (TR105P starts.)
• When the TR105P expires (after 6 sec.), the PS must switch back to the previous CS.
• After the PS switches back to the previous CS, the PS must resume 64k bit/s UDI communication.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI channel switching during communication ; Handover with PS judgment (Recalling type handover to other CS/other paging area)</th>
</tr>
</thead>
</table>

**Overview :**
- When the reception level for the communication carriers decrease below the recalling-type handover process level during the 64k bit/s UDI communication state, check that the PS performs the recalling-type handover to other CS of other paging area. After the call ends, check that the PS performs location registration.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1 (No. 1), 2 (No. 2)
- Additional ID : 1 (No. 1), 1 (No. 2)
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern B (with RT/MM function request)
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 (No. 1) 3 (No. 2)
- Communication carrier number : 1st TCH L → H (switching to) 2nd TCH H → No assignment
- Communication slot number : 1st TCH 2 → 2 (switching to) 2nd TCH 4 → No assignment

**Test procedure :**
1. Perform location registration normally using the PS (Paging area number : 1).
2. Originate a 64k bit/s UDI call on the PS and set the 64k bit/s UDI communication state between the CS No. 1 and the PS.
3. Transmit LCCH (CS No. 2) at a level above the recalling-type handover destination zone selection level.
4. Set the transmit level of LCCH (CS No. 1) to below the recalling-type handover destination zone selection level and the transmission level for both communication slots (slot number 2 & 4) to below the recalling-type handover process level via simulator.
5. Check that the PS activates the recalling-type handover to other CS (No. 2) in other paging area after capturing LCCH (CS No. 2).
6. Check that the PS resumes 64k bit/s UDI communication state using a TCH with CS No. 2 and after that end the communication with the PS.
7. After the communication has ended, check that the PS performs location registration with CS No. 2.
8. Check the sequence for the recalling-type handover and location registration via the simulator.

**Check items :**
- When the reception level for the communication carriers become lower than the recalling-type handover process level during the 64k bit/s communication, the PS must capture the LCCH with other paging area.
- The PS must activate handover to other CS in other paging area and resumes communication.
- After the communication has ended, the PS must perform location registration.
### 2.3.3.2.2.3  Restriction operation tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-3-1</th>
<th>Item</th>
<th>Application operation: Restriction; Operation by restriction group set (Within restriction group/No access cycle restriction)</th>
</tr>
</thead>
</table>

**Overview:**
- When the PS receives "restriction group set (without access cycle restriction) and with calling restriction for general PS", check that the PS does not connect even when a call is originated.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern D (calling restriction, location registration enable)
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: —
- Communication slot number: —

**Test procedure:**
1. Complete location registration by the PS. (Paging area number: 1)
2. The simulator specifies the restriction group by a "system information broadcasting (without access cycle restriction)".
3. Check that the PS does not send a link channel establishment request even if a call is originated by the PS.
4. Check the origination sequence via the simulator.

**Check items:**
- The PS must receive a "restriction group set (without access cycle restriction) ; with calling restriction for general PS" in a system information broadcasting message for the LCCH.
- The PS must not send a link channel establishment request even if originating a call on the PS. (calling restriction)
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-3-2</th>
<th>Item</th>
<th>Application operation : Restriction; Operation by restriction group set (Out of restriction group / No access cycle restriction)</th>
</tr>
</thead>
</table>

**Overview:**
- When the PS receives "restriction group reset during the calling restriction state, check that the PS normally switches to the communication state by the call originating operation.

**Test conditions:**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern D→Pattern F (location registration/ calling restriction other than group 6)
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : M
- Communication slot number : 2

**Test procedure:**
1. Set the PS under restriction (as outlined in test 2-2-3-1).
2. The simulator resets the restriction group by sending a system information broadcasting.
3. Check that the PS switches to the communication state by the originating operation.
4. Onhook the PS.
5. Check the origination sequence via the simulator.

**Check items:**
- The PS must be under calling restriction.
- The PS must normally originate a call and switches to the communication state on reception of the restriction group reset in the system information broadcasting.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-3-3</th>
<th>Item</th>
<th>Application operation : Restriction; Operation by restriction group set (Within restriction group / With access cycle restriction)</th>
</tr>
</thead>
</table>

**Overview :**
- Check that the PS cannot originate a call within the restriction interval of the access cycle even if the PS receives a restriction group reset. Then check that the PS normally originates a call after the restriction interval of the access cycle.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern F → Pattern E → Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : M
- Communication slot number : 2

**Test procedure :**
1. Reset restriction for the PS (as outlined in test 2-2-3-2).
2. The simulator specifies the restriction group (LCCH superframe cycle x 32) by the system information broadcasting message.
3. Check that the PS cannot originate a call by the call originating operation. (i.e., the link channel establishment request is not transmitted.) (The timer starts: LCCH superframe cycle x 32)
4. The simulator resets restriction group by sending the system information broadcasting message.
5. Check that a call cannot be originated from the PS by the originating operation while the access cycle interval timer is active.
6. Check that the PS can originate a call normally by the originating operation after the access cycle interval timer sets time out.
7. Onhook the PS.
8. Check the calling restriction operation sequence via the simulator.

**Check items :**
- The PS must be under calling restriction.
- The PS cannot originate a call by the originating operation while the access cycle interval timer is active after the restriction group is reset by the system information broadcasting message. (The PS must not transmit a link channel establishment request.)
- The PS can originate a call normally after the access cycle interval timer sets time out following resetting of restriction.
Test no. | 2-2-3-4 | Item | Application operation : Restriction; Operation when the PS moves from non-restriction area to restriction area (No access cycle restriction)

Overview :

- When the PS moves from a non-restriction area to an area with different paging area number, specified by "restriction group set (no access cycle): location registration restriction for general PS", check that the PS does not perform location registration.

Test conditions :

- Operator ID code : 1
- Paging area number : 1 → 2
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A → Pattern G (location registration restriction, origination enable)
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 → 3
- Communication carrier number : —
- Communication slot number : —

Test procedure :

1. Reset restriction for the PS (as outlined in test 2-2-3-3).

2. The simulator specifies the restriction group by the system information broadcasting message with paging area number "2". (Location registration restriction)

3. Set the transmission level for broadcasting signal with paging area number "1" to below the standby zone hold level and the transmission level for the broadcasting signal with paging area number "2" to above the standby zone selection level via the simulator (i.e., allow the PS to move from one area to another artificially).

4. Check that the PS does not send a location registration request for 200 sec.

5. Check the location registration sequence is not activated via the simulator.

Check items :

- When the PS receives an updated paging area number but the system information for the relevant area is set for "restriction group set (location registration restriction: no access cycle restriction)"; the PS must determine that the area is under location registration restriction and must not transmit a link channel establishment request.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-3-5</th>
<th>Item</th>
<th>Application operation : Restriction; Operation when the PS moves from a restriction area to a non-restriction area (No access cycle restriction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview :</td>
<td></td>
<td></td>
<td>- When the PS moves from a restriction area to a non-restriction area, the check that the PS performs location registration and originate a call, then normally switches to the communication state.</td>
</tr>
</tbody>
</table>
| Test conditions : | | | - Operator ID code : 1  
- Paging area number : 2 → 3  
- Additional ID : 1  
- Radio channel information broadcasting : Pattern A  
- System information broadcasting : Pattern G (restriction group 6) → Pattern F (restriction group other than 6)  
- 2nd system information broadcasting : Pattern A  
- Control slot number : 3 → 1  
- Communication carrier number : M  
- Communication slot number : 2 |
| Test procedure : | | | 1. Set the PS under restriction (as outlined in test 2-2-3-4).  
2. Set the transmission level for broadcasting signal with paging area number "2" to below the standby zone hold level and the transmission level for the broadcasting signal with paging area number "3" to above the standby zone selection level via the simulator. (Permit the PS to move from one area to another artificially).  
3. Check that the simulator broadcasts the non-restriction area with a different paging area number by the system information broadcasting, then PS performs location registration.  
4. Perform the originating operation, then check that PS originates a call and switches to the communication state.  
5. Onhook the PS.  
6. Check the location registration and origination sequences via the simulator. |
| Check items : | | | - The PS must receive a broadcasting signal from a non-restriction area with a different paging area number and send a location registration request.  
- The PS must transmit a link channel establishment request by the originating operation and switches to the communication state. |
Test no. | 2-2-3-6 | Item | Application operation : Restriction; Operation according to CS information
--- | --- | --- | ---

Overview:

- When the PS moves from a non-restriction area to a restriction area (CS unusable), check that the PS does not perform location registration.

Test conditions:

- Operator ID code : 1
- Paging area number : 3 (without restriction group) → 2 (CS unusable)
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern F (groups other than restriction group 6) → Pattern C (CS unusable)
- 2nd system information broadcasting : Pattern A
- Control slot number : 1 → 3
- Communication carrier number : —
- Communication slot number : —

Test procedure:

1. Reset restriction for the PS (as outlined in test 2-2-3-5).

2. Set the system information broadcast with paging area number "2" for "CS unusable" via the simulator.

3. Set the transmission level for broadcasting signal with paging area number "3" to below the standby zone hold level and the transmission level for the broadcasting signal with paging area number "2" to above the standby zone selection level via the simulator. (Permit the PS to move from one area to another artificially).

4. Check that the PS does not perform location registration for 200 sec.

5. Check that the location registration sequence is not activated via the simulator.

Check items:

- The PS must not send a location registration request when the PS moves to an area under restriction for "CS unusable."
2.3.3.2.2.4  Semi-normal outgoing call tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Item</th>
<th>Application operation : Semi-normal outgoing call operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2-4-1</td>
<td></td>
<td>Disconnection when the called party (on the CS side) is busy</td>
</tr>
</tbody>
</table>

**Overview :**

- When the originating operation is performed on the PS and the PS receives a "called party busy", from the CS, check that the PS ends a call by operation or automatic ending operation.

**Test conditions :**

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : M
- Communication slot number : 2

**Test procedure :**

1. Complete location registration on the PS. (Paging area number : 1)
2. When the simulator receives a call connection request from the PS, it sends a disconnection signal containing the progress indicator which indicates that the inband signal is provided.
3. Check that the PS receives the signal equivalent to the inband signal from the simulator.
4. Check that the call ends on the PS by the call ending operation.
5. Check the origination and disconnection sequences via the simulator.

**Check items :**

- The PS must ends the call by the onhook operation when it receives a "called party busy" in the disconnection signal from the network.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-4-2</th>
<th>Item</th>
<th>Application operation: Semi-normal outgoing call operation Verification of ID at link channel establishment (Calling station ID code does not match up)</th>
</tr>
</thead>
</table>

**Overview:**
- When the calling station ID code for the downlink synchronization burst does not match up with that of the uplink synchronization burst after the link channel assignment at origination, check that the PS switches back to the standby state after the specified period of time.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: M
- Communication slot number: 3
- CS-ID for synchronization burst: Operator ID code 2

**Test procedure:**
1. Set the PS for the standby state.
2. Perform the originating operation on the PS. After the PS receives a link channel assignment, check that the PS sends a uplink synchronization burst.
3. Transmit a downlink burst with different operator ID code by the simulator.
4. The PS sends a link channel establishment re-request if it has not received a normal synchronization burst before timer TR101P-1 sets time out (within 100ms). At this point check that the PS transmits the link channel establishment re-request at a maximum of 3 times and switches to the standby state.

**Check items:**
- The PS must receive a link channel assignment after the PS sends a link channel establishment request by the originating operation on the PS.
- The PS must transmit a uplink synchronization burst after receiving the link channel assignment. When the PS detects that the calling station ID code in the downlink synchronization burst does not match up with that for the uplink synchronization burst, the PS must send a link channel establishment re-request when timer TR101P-1 (100ms) expires.
- The PS must switch back to the standby state after transmitting the link channel establishment re-request at a maximum of 3 times.
Test no. 2-2-4-3 | Item | Application operation: Semi-normal outgoing call operation Verification of ID at link channel establishment (Called station ID code does not match up)

**Overview:**
- When the called station ID code for the downlink synchronization burst does not match up with that of the uplink synchronization burst after the link channel assignment at origination, check that the PS switches back to the standby state after the specified period of time.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: M
- Communication slot number: 3
- PS-ID for synchronization burst: PS-ID 2

**Test procedure:**
1. Set the PS for the standby state.
2. Perform the originating operation on the PS. After the PS receives a link channel assignment, check that the PS sends a uplink synchronization burst.
3. Send a downlink burst with different PS-ID by the simulator.
4. The PS sends a link channel establishment re-request if it has not received a normal synchronization burst before timer TR101P-1 sets time out (within 100ms). At this point check that the PS transmits the link channel establishment re-request at a maximum of 3 times and switches to the standby state.

**Check items:**
- The PS must receive a link channel assignment after the PS sends a link channel establishment request by the originating operation on the PS.
- The PS must transmit a uplink synchronization burst after receiving the link channel assignment. When the PS detects that the PS-ID in the downlink synchronization burst does not match up with that for the uplink synchronization burst, the PS must send a link channel establishment re-request when timer TR101P-1 (100ms) expires.
- The PS must switch back to the standby state after retrying the link channel establishment re-request at a maximum of 3 times.
Test no. 2-2-4-4 | Item | Application operation: Semi-normal outgoing call operation; Modifier of synchronization burst verification at link channel establishment (Modifier code for 1st TCH does not match up)

Overview:
- When the modifier code for 1st TCH downlink synchronization burst does not match up with that of the uplink synchronization burst after the link channel assignment at origination, check that the PS switches back to the standby state after the specified period of time.

Test conditions:
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: M
- Communication slot number: 3

Test procedure:
1. Set the PS for the standby state.
2. Perform the originating operation on the PS. After the PS receives a link channel assignment, check that the PS sends an uplink synchronization burst.
3. Send a downlink synchronization burst with modifier code for 2nd TCH by the simulator.
4. The PS sends a link channel establishment re-request if it has not received a normal synchronization burst before timer TR101P-1 expires (within 100 ms). At this point check that the PS transmits the link channel establishment re-request at a maximum of 3 times and switches to the standby state.

Check items:
- The PS must receive a link channel assignment after the PS sends a link channel establishment request by originating operation on the PS.
- The PS must transmit an uplink synchronization burst after receiving the link channel assignment. When the PS detects that the modifier code in the downlink synchronization burst does not match up with that for the uplink synchronization burst, the PS must send a link channel establishment re-request when timer TR101P-1 expires.
- The PS must switch back to the standby state after retrying the link channel establishment re-request at a maximum of 3 times.
### Test no. 2-2-4-5

<table>
<thead>
<tr>
<th>Item</th>
<th>Application operation : 64k bit/s UDI semi-normal outgoing call operation ; Modifier of 2nd synchronization burst verification at 64k bit/s UDI communication (Modifier code for 2nd TCH does not match up)</th>
</tr>
</thead>
</table>

#### Overview :
- When the modifier code for 2nd TCH downlink synchronization burst does not match up with that of the uplink synchronization burst after the additional channel assignment at origination, check that the PS switches back to the standby state after the specified period of time.

#### Test conditions :
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH M : 2nd TCH M
- Communication slot number : 1st TCH 4 : 2nd TCH 2

#### Test procedure :
1. Set the PS for the standby state.
2. Perform the 64k bit/s UDI originating operation on the PS. After the PS receives a additional channel assignment, check that the PS sends a uplink 2nd synchronization burst.
3. Send a downlink 2nd synchronization burst with modifier code for 1st TCH by the simulator.
4. Check that the PS switches to the standby state if it has not received a normal 2nd synchronization burst before timer TR101P-1 expires (within 100 ms).

#### Check items :
- The PS must receive a additional channel assignment after the PS sends a additional channel request by 64k bit/s UDI originating operation on the PS.
- The PS must transmit a uplink 2nd synchronization burst after receiving the additional channel assignment. When the PS detect that the modifier code in the downlink 2nd synchronization burst does not match up with that for the uplink synchronization burst, the PS must switch back to the standby state when timer TR101P-1 expires.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-4-6</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI semi-normal outgoing call operation ; Unavailable 2nd TCH assignment at 64k bit/s UDI communication</th>
</tr>
</thead>
</table>

**Overview :**
- When the PS cannot correspond to the 2nd TCH assigned in additional channel assignment, check that the PS sends additional channel re-request.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH L
  - 2nd TCH H
- Communication slot number : 1st TCH 2
  - 2nd TCH 2 → 4 (at assignment in response to additional channel re-request)

**Test procedure :**
1. Set the PS for the standby state.
2. Perform the 64k bit/s UDI originating operation on the PS. After the PS receives a additional channel assignment and recognizes that assigned slot cannot be corresponded, check that the PS sends a additional channel re-request.
3. Send a additional channel assign which contains available 2nd TCH by the simulator.
4. Check that the PS establishes 2nd TCH on assigned channel.

**Check items :**
- The PS must receive a additional channel assignment after the PS sends a additional channel request by 64k bit/s UDI originating operation on the PS.
- The PS must send additional channel re-request after the PS recognizes the slot which assigned in the received additional channel assignment is not corresponded.
- The PS must establish 2nd TCH on assigned channel which is contained in the additional channel assignment in response to additional channel re-request.
Test no. 2-2-4-7 Item Application operation : 64k bit/s UDI semi-normal outgoing call operation ; Modifier of 2nd synchronization burst verification at 64k bit/s UDI communication (Modifier code for 2nd TCH does not match up)

Overview :

- When the modifier code for 2nd TCH downlink synchronization burst does not match up with that of the uplink synchronization burst after the additional channel assignment at origination, check that the PS releases 2nd TCH to idle state after the specified period of time and starts 64k bit/s UDI communication using a TCH.

Test conditions :

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH H → H
  : 2nd TCH H → Not assignment
- Communication slot number : 1st TCH 2 → 2
  : 2nd TCH No assignment

Test procedure :

1. Perform the 64k bit/s UDI originating operation on the PS.
2. After the PS receives a additional channel assignment, check that the PS sends a uplink 2nd synchronization burst.
3. Send a downlink 2nd synchronization burst with modifier code for 1st TCH by the simulator.
4. Check that the PS releases 2nd TCH to idle state and starts 64k bit/s UDI communication using a TCH if it has not received a normal 2nd synchronization burst before timer TR101P-1 expires (within 100 ms).

Check items :

- The PS must receive a additional channel assignment after the PS sends a additional channel request by 64k bit/s UDI originating operation on the PS.
- The PS must transmit a uplink 2nd synchronization burst after receiving the additional channel assignment. When the PS detect that the modifier code in the downlink 2nd synchronization burst does not match up with that for the uplink synchronization burst, the PS must release 2nd TCH to idle state and starts 64k bit/s communication using a TCH when timer TR101P-1 expires.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-4-8</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI semi-normal outgoing call Additional TCH request rejection in combination of the Two slot fixed type CS and the Slot changeable type PS in 64k bit/s call originating</th>
</tr>
</thead>
</table>

**Overview :**
- When the 64k UDI service type which PS request in Additional channel request message is not applicable to CS, check that the PS receives Additional channel assign reject message.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH H → H
- Communication slot number : 1st TCH 2 → 2

**Test procedure :**
1. Complete location registration on the PS. (Paging area number : 1)
2. Perform the 64k bit/s UDI originating operation on the PS.
3. After 1st TCH is established, simulator which supports the Two slots fixed type 64k bit/s UDI sends Additional channel assign reject message in response to Additional channel request message with the Slot changeable type indication from the PS.
4. Check that the PS receives the Additional channel assign reject message.

**Check items :**
- The PS must receive a Additional channel assign reject message after the PS sends a Additional channel request by 64k bit/s UDI originating operation on the PS.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-4-9</th>
<th>Item</th>
<th>Application operation: 64k bit/s UDI semi-normal outgoing call Additional TCH request rejection in combination of the Slot changeable type CS and the Two slot fixed type PS in 64k bit/s call originating</th>
</tr>
</thead>
</table>

**Overview:**
- When the 64k UDI service type which PS request in Additional channel request message is not applicable to CS, check that the PS receives Additional channel assign reject message.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: 1st TCH $H \rightarrow H$
- Communication slot number: 1st TCH $2 \rightarrow 2$

**Test procedure:**
1. Complete location registration on the PS. (Paging area number: 1)
2. Perform the 64k bit/s UDI originating operation on the PS.
3. After 1st TCH is established, simulator which supports the Slot changeable type 64k bit/s UDI sends Additional channel assign reject message in response to Additional channel request message with the Two slots fixed type indication from the PS.
4. Check that the PS receives the Additional channel assign reject message.

**Check items:**
- The PS must receive a Additional channel assign reject message after the PS sends an Additional channel request by 64k bit/s UDI originating operation on the PS.
### 2.3.3.2.2.5 Semi-normal incoming call tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-5-1</th>
<th>Item</th>
<th>Application operation : Semi-normal incoming call operation Incoming call to PS in the same paging group but different PS number</th>
</tr>
</thead>
</table>

**Overview:**
- When a paging signal is set for different PS number, check that the PS does not perform the terminating operation.

**Test conditions:**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : —
- Communication slot number : —
- PS called party number : 022-345-6789

**Test procedure:**
1. Perform normal location registration normally using the PS. (Paging area number : 1)
2. The simulator terminates a call to the PS.
3. Check that the PS does not receive a call.
4. Check that the termination sequence is not activated on the simulator.

**Check items:**
- The PS must not terminate a call on reception of paging signals with different PS number.
- The PS must not send a link channel establishment request.
Test no. 2-2-5-2 Item Application operation : 64k bit/s UDI semi-normal incoming call operation ; 64k bit/s UDI incoming call to the PS which does not support 64k bit/s UDI communication

Overview :

• When the PS which does not support 64k bit/s UDI communication receives an additional channel request indicate from CS in incoming call processing, check that the PS sends additional channel request indicate reject.

Test conditions :

• Operator ID code : 1
• Paging area number : 1
• Additional ID : 1
• Radio channel information broadcasting : Pattern A
• System information broadcasting : Pattern A
• 2nd system information broadcasting : Pattern A
• Control slot number : 1
• Communication carrier number : 1st TCH L
• Communication slot number : 1st TCH 2

Test procedure :

1. End location registration normally. (Paging area number : 1)

2. Allow the PS to receive a 64k bit/s UDI call from the simulator.

3. The simulator sends an additional channel request indicate after receiving the paging response.

4. Check that the PS sends an additional channel request indicate reject via the simulator.

Check items :

• The PS which does not support 64k bit/s UDI communication must sends additional channel request indicate reject when the PS receives an additional channel request indicate from CS.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI semi-normal incoming call Additional TCH request rejection in combination of the Two slot fixed type CS and the Slot changeable type PS in 64k bit/s call terminating</th>
</tr>
</thead>
</table>

**Overview :**
- When the 64k UDI service type which PS request in Additional channel request message is not applicable to CS, check that the PS receives Additional channel assign reject message.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH H → H
- Communication slot number : 1st TCH 2 → 2

**Test procedure :**
1. Perform normal location registration normally using the PS. (Paging area number : 1)
2. The simulator terminates a 64k bit/s UDI call to the PS.
3. After 1st TCH is established, simulator which supports the Two slots fixed type 64k bit/s UDI sends Additional channel assign reject message in response to Additional channel request message with the Slot changeable type indication from the PS.
4. Check that the PS receives the Additional channel assign reject message.

**Check items :**
- The PS must receive a Additional channel assign reject message after the PS sends a Additional channel request by 64k bit/s UDI terminating operation on the PS.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-5-4</th>
<th>Item</th>
<th>Application operation : 64k bit/s UDI semi-normal incoming call Additional TCH request rejection in combination of the Slot changeable type CS and the Two slot fixed type PS in 64k bit/s call terminating</th>
</tr>
</thead>
</table>

**Overview:**
- When the 64k UDI service type which PS request in Additional channel request message is not applicable to CS, check that the PS receives Additional channel assign reject message.

**Test conditions:**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH H → H
- Communication slot number : 1st TCH 2 → 2

**Test procedure:**
1. Perform normal location registration normally using the PS. (Paging area number : 1)
2. The simulator terminates a 64k bit/s UDI call to the PS.
3. After 1st TCH is established, simulator which supports the Slot changeable type 64k bit/s UDI sends Additional channel assign reject message in response to Additional channel request message with the Two slots fixed type indication from the PS.
4. Check that the PS receives the Additional channel assign reject message.

**Check items:**
- The PS must receive a Additional channel assign reject message after the PS sends a Additional channel request by 64k bit/s UDI terminating operation on the PS.
### 2.3.3.2.2.6 Transmission stop operation tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Item</th>
<th>Application operation: Transmission stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2-6-1</td>
<td></td>
<td>Transmission halts, Radio channel release</td>
</tr>
</tbody>
</table>

**Overview:**

- When consecutive slot errors occur during the communication state, check that the time specified for transmission halt and radio channel release meet the specified time.

**Test conditions:**

- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: M
- Communication slot number: 4

**Test procedure:**

1. Set the PS for the communication state (as outlined in test 2-2-9).
2. The simulator sets consecutive slot errors for the transmission signal to the PS.
3. Check that transmission stops within 4 sec at start of slot errors on the simulator.
4. Check that the PS releases the radio channel in 60 sec after slot errors start.

**Check items**

- The PS must halt transmission until the error state is continued regardless of the reception level when consecutive slot errors continue at least 4 sec during communication.
- If consecutive slot errors continue for at least 60 sec, the PS must release the radio channel regardless of the reception level.
### 2.3.3.2.2.7 Additional channel establishment and disconnection during the communication tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-7-1</th>
<th>Item</th>
<th>Application operation : Additional channel establishment and disconnection 64k bit/s UDI additional channel synchronization establishment with CS indication</th>
</tr>
</thead>
</table>

**Overview :**
- When the PS receives the Additional channel assign request indicate message during 64k bit/s UDI communication using a TCH, check that PS starts establishing 2nd TCH and continues 64k bit/s UDI communication by using double TCH.

**Test conditions :**
- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
  - Communication carrier number : 1st TCH H → H : 2nd TCH No assignment → L (or H, belongs to PS availability)
  - Communication slot number : 1st TCH 2 → 2 : 2nd TCH No assignment → 3

**Test procedure :**
1. Set the PS for the 64k bit/s UDI communication state.
2. The simulator sends the Additional channel assign request indicate message.
3. Check that the PS sends the Additional channel request message in response to the Additional channel assign request indicate message.
4. The simulator assigns 2nd TCH in Additional channel assign message
5. Check that the 64k bit/s UDI communications using double TCH are enabled between the simulator and the PS
6. Check the 2nd TCH establishment sequence on the simulator

**Check items**
- PS must establishes 2nd TCH specified by the Additional channel assign message and 64k bit/s UDI communication using double TCH must be set to.
- 1st TCH must not be changed during the channel adding operation of 2nd TCH.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-7-2</th>
<th>Item</th>
<th>Application operation: Additional channel establishment and disconnection</th>
</tr>
</thead>
</table>

### Overview:

- When the PS receives Radio-channel disconnect message on 2nd TCH during the 64k bit/s UDI communication using double TCH, check that PS releases 2nd TCH and continues 64k bit/s UDI communication by using a TCH.

### Test conditions:

- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: 1st TCH H → H
  
  : 2nd TCH L (or H, belongs to PS availability)
  → No assignment

- Communication slot number: 1st TCH 2 → 2
  
  : 2nd TCH 3 → No assignment

### Test procedure:

1. Set the PS for the 64k bit/s UDI communication state. (As outlined in the test 2-2-7-1)
2. The simulator sends the Radio-channel disconnect message on 2nd TCH.
3. Check that the PS sends the Radio-channel disconnect complete message on 2nd TCH in response to Radio-channel disconnect message and releases 2nd TCH.
4. Check that the 64k bit/s UDI communications using a TCH are enabled between the simulator and the PS.
5. Check the sequence of the 2nd TCH release on the simulator.

### Check items

- PS must send Radio-channel disconnect complete message on 2nd TCH and release the channel.
- PS must continue 64k bit/s UDI communication using a TCH after 2nd TCH releasing.
- 1st TCH must not be changed during the channel adding operation of 2nd TCH.
### Test no. 2-2-7-3

**Application operation** : Additional channel establishment and disconnection

64k bit/s UDI additional channel synchronization establishment with PS judgement

### Overview:

- When the PS sends the Additional channel request message during 64k bit/s UDI communication using a TCH, check that PS starts establishing 2nd TCH and continues 64k bit/s UDI communication by using double TCH.

### Test conditions:

- Operator ID code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern A
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 1st TCH H → H
  
  : 2nd TCH No assignment
  
  → L (or H, belongs to PS availability)
- Communication slot number : 1st TCH 2 → 2
  
  : 2nd TCH No assignment → 3

### Test procedure:

1. Set the PS for the 64k bit/s UDI communication state. (As outlined in the test 2-2-7-2)
2. The PS sends the Additional channel request message.
3. The simulator assigns 2nd TCH in Additional channel assign message in response to the Additional channel request message.
4. Check that the 64k bit/s UDI communications using double TCH are enabled between the simulator and the PS.
5. Check the 2nd TCH establishment sequence on the simulator

### Check items:

- PS must establishes 2nd TCH specified by the Additional channel assign message and 64k bit/s UDI communication using double TCH must be set to.
- 1st TCH must not be changed during the channel adding operation of 2nd TCH.
Test no. | 2-2-7-4 | Item | Application operation: Additional channel establishment and disconnection 64k bit/s UDI 2nd TCH release during communication with PS judgement
--- | --- | --- | ---

**Overview:**
- When the PS sends Radio-channel disconnect complete message on 2nd TCH during the 64k bit/s UDI communication using double TCH, check that PS releases 2nd TCH and continues 64k bit/s UDI communication by using a TCH.

**Test conditions:**
- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: 1st TCH \( \rightarrow \) H  
  2nd TCH L (or H, belongs to PS availability)  
  \( \rightarrow \) No assignment
- Communication slot number: 1st TCH 2 \( \rightarrow \) 2  
  2nd TCH 3 \( \rightarrow \) No assignment

**Test procedure:**
1. Set the PS for the 64k bit/s UDI communication state. (As outlined in the test 2-2-7-3)
2. Check that the PS sends the Radio-channel disconnect complete message on 2nd TCH  
Radio-channel disconnect message and releases 2nd TCH.
3. Check that the 64k bit/s UDI communications using a TCH are enabled between the simulator and the PS.
4. Check the sequence of the 2nd TCH release on the simulator.

**Check items**
- PS must send Radio-channel disconnect complete message on 2nd TCH and release the channel.
- PS must continue 64k bit/s UDI communication using a TCH after 2nd TCH releasing.
- 1st TCH must not be changed during the channel adding operation of 2nd TCH.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>2-2-7-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Application operation: Additional channel establishment and disconnection 64k bit/s UDI failure of additional channel synchronization establishment with PS judgement</td>
</tr>
</tbody>
</table>

**Overview:**

- When the PS receives the Additional channel assign message and fail to receive the 2nd synchronization burst in additional channel establishing process within the specified period of time, check that the PS releases 2nd TCH to idle state and resumes 64k bit/s UDI communication using a TCH.

**Test conditions:**

- Operator ID code: 1
- Paging area number: 1
- Additional ID: 1
- Radio channel information broadcasting: Pattern A
- System information broadcasting: Pattern A
- 2nd system information broadcasting: Pattern A
- Control slot number: 1
- Communication carrier number: 1st TCH H → H
  : 2nd TCH H → No assignment
- Communication slot number: 1st TCH 2 → 2
  : 2nd TCH 4 → No assignment

**Test procedure:**

1. Set the PS for the 64k bit/s UDI communication state. (As outlined in the test 2-2-7-4)
2. The simulator sends the Additional channel assign message and does not send 2nd synchronization burst on assigned channel.
3. Check that the PS releases 2nd TCH to idle state and resumes 64k bit/s UDI communication using a TCH if it has not received a 2nd synchronization burst before timer TR101P-1 expires (within 100 ms).

**Check items**

- PS must continue 64k bit/s UDI communication using a TCH even if the additional channel synchronization establishment is failed.
2.3.3.3 Tests for items specified in the Attachment

2.3.3.3.1 Authentication tests

Regarding authentication, tests shall be conducted to confirm the authentication for the algorithms described in the Personal Handy Phone System ARIB Standard Version 3 Annex 1 "Standard Pertaining to Authentication of Personal Handy Phone System (Public)"

The authentication random pattern for authentication shall be tested on one or more values. These values can be decided freely by the PS manufactures.

2.3.3.3.2 Subscriber data write-in tests

Regarding subscriber data write-in, the tests specified in the Personal Handy Phone System ARIB Standard Version 3 Annex 2 "Standard Pertaining to Subscriber Data Write-in of Personal Handy Phone System (Public)" shall be conducted.
Chapter 3  Compatibility Confirmation Tests

3.1 Purpose

Compatibility confirmation tests shall be conducted for personal stations which have already undergone the simulator tests conducted by individual manufacturer. For these tests, personal stations are connected with the testing system to check that the personal station operates normally when using the basic functions, including outgoing call, incoming call, location registration, communication, handover, call ending, etc.

3.2 Configuration of the test system

Fig. 3.1 shows an example configuration for the compatibility confirmation test system.

![Diagram of test system configuration]

Fig. 3.1 Example configuration for compatibility confirmation tests

3.3 Implementation of compatibility confirmation tests

Compatibility confirmation tests shall be conducted on the test system for personal stations which have already undergone the test using the simulator.
3.4 Tests items and conditions

3.4.1 List of test items

Test items for compatibility confirmation tests shall be as listed below:

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<th>Test item</th>
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<td>Location registration</td>
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<tr>
<td>3-2-1</td>
<td>Outgoing call/communication/disconnection by PS</td>
</tr>
<tr>
<td>3-2-2</td>
<td>64k bit/s UDI outgoing call/communication/disconnection by PS</td>
</tr>
<tr>
<td>3-3</td>
<td>Incoming call/call ending operation tests</td>
</tr>
<tr>
<td>3-3-1</td>
<td>Incoming call/communication/disconnection by the test system</td>
</tr>
<tr>
<td>3-3-2</td>
<td>64k bit/s UDI incoming call/communication/disconnection by the test system</td>
</tr>
<tr>
<td>3-4</td>
<td>Handover operation tests (Note 1)</td>
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<tr>
<td>3-4-1</td>
<td>Handover</td>
</tr>
<tr>
<td>3-4-2</td>
<td>64k bit/s UDI Handover</td>
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<td>3-5</td>
<td>Tests for items specified in the Annex of the Standard</td>
</tr>
<tr>
<td>3-5-1</td>
<td>Authentication test</td>
</tr>
<tr>
<td>3-5-2</td>
<td>Subscriber data write-in test</td>
</tr>
</tbody>
</table>

Note 1: The test conditions for handover operation tests shall be personal station initiative type.
Note 2: If PS is able to achieve a 64k bit/s communication with using 2 TCH simultaneously, these tests are required.
Note 3: If each test is going by selecting bearer capability as UDI, words “converse” shall be recognized same meaning of “communicate” and check shall be done by protocol sequence but not by transmission/reception volume using handset.

3.4.2 Test conditions at start of testing

(1) Set attenuation for variable attenuator 2 to maximum.

(2) Adjust variable attenuator 1 so that the reception for the personal station increases to a sufficiently high level to switch to the standby state. The attenuation level set here is hereinafter referred to as "specified attenuation".
### 3.4.3 Contents of tests

The content of compatibility confirmation tests shall be as listed below:

#### 3.4.3.1 Location registration operation tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Item</th>
<th>Location registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview :</td>
<td>• Check that the PS performs location registration normally.</td>
<td></td>
</tr>
<tr>
<td>Test procedure :</td>
<td>1. Perform location registration with the PS by turning the power ON or using the location registration operation.</td>
<td>2. Check that the location registration sequence ends normally using the test system.</td>
</tr>
</tbody>
</table>

#### 3.4.3.2 Outgoing call/disconnection operation tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Item</th>
<th>Outgoing call/communication/disconnection by PS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview :</td>
<td>• Originate a call from the PS and check that the PS end the call normally.</td>
<td></td>
</tr>
<tr>
<td>Test procedure :</td>
<td>1. Turn the power for the PS ON to set it for the standby state</td>
<td>2. Originate a call from the PS.</td>
</tr>
<tr>
<td></td>
<td>3. Check that the call is setup normally and can converse normally over the PS. (Note)</td>
<td>4. End the call using the PS.</td>
</tr>
<tr>
<td></td>
<td>5. Check that the sequence ends normally using the test system.</td>
<td></td>
</tr>
</tbody>
</table>

(Note) If the bearer capability is selected as unrestricted digital information (UDI), test procedure 3 is replaced as “Check that the call is setup and communication starts normally by protocol sequence using the test system”.
### Test no. 3-2-2 Item

64k bit/s UDI outgoing call/communication/disconnection by PS

**Overview:**
- Originate a 64k bit/s UDI call from the PS and check that the PS end the call normally.

**Test procedure:**
1. Turn the power for the PS ON to set it for the standby state
2. Originate a 64k bit/s UDI call from the PS.
3. Check that the call is setup and 64k bit/s UDI communication starts normally by protocol sequence using the test system.
4. End the call using the PS.
5. Check that the sequence ends normally using the test system.

---

3.4.3.3 Incoming call/call ending operation tests

### Test no. 3-3-1 Item

Incoming call/communication/disconnection by the test system

**Overview:**
- Allow the PS to receive a call originated using the test system, then check that the call can be ended normally from the test system.

**Test procedure:**
1. Turn the power for the PS ON to set it for the standby state
2. Originate a call from the test system to the PS.
3. Check that ringing tone is generated by the PS, then answer the call. (Note 1)
4. Check that the call is setup normally and can converse normally over the PS. (Note 2)
5. End the call using the test system.
6. Check that the sequence ends normally using the test system.

**(Note 1)** If the bearer capability is selected as unrestricted digital information (UDI), the word “ringing tone” in test procedure 3 shall be recognized same meaning as “receiving call indication”.

If the PS has a autonomous answering function, test procedure 3 can be omitted.

**(Note 2)** If the bearer capability is selected as unrestricted digital information (UDI), test procedure 4 is replaced as “Check that the call is setup and communication starts normally by protocol sequence using the test system”.

---

**continued on next page**
<table>
<thead>
<tr>
<th>Test no.</th>
<th>3-3-2</th>
<th>Item</th>
<th>64k bit/s UDI Incoming call/communication/disconnection by the test system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Allow the PS to receive a 64k bit/s UDI call originated using the test system, then check that the call can be ended normally from the test system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test procedure :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Turn the power for the PS ON to set it for the standby state.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Originate a 64k bit/s UDI call from the test system to the PS.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Check the receiving call indication, then answer the call.  (Note)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Check that the call is setup and 64k bit/s UDI communication starts normally by protocol sequence using the test system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. End the call using the test system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Check that the sequence ends normally using the test system.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Note) If the PS has a autonomous answering function, test procedure 3 can be omitted.

3.4.3.4  Handover operation tests

<table>
<thead>
<tr>
<th>Test no.</th>
<th>3-4-1</th>
<th>Item</th>
<th>Handover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Check that the PS switches between zones and can handover normally.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test procedure :</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Turn the power for the PS ON to set it for the standby state.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Originate a call from the PS.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Check that the call is put through normally.  (Note 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Set variable attenuator 2 to the specified attenuation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Set variable attenuator 1 to the maximum setting.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Check that the call is connected normally after handover.  (Note 2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. End the call using the test system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Check that the sequence normally using the test system.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Note 1) If the bearer capability is selected as unrestricted digital information (UDI), test procedure 3 is replaced as “Check that the call is setup and communication starts normally by protocol sequence using the test system”.

(Note 2) If the bearer capability is selected as unrestricted digital information (UDI), test procedure 6 is replaced as “Check that the call is connected normally after handover by protocol sequence using the test system”.
<table>
<thead>
<tr>
<th>Test no.</th>
<th>3-4-2</th>
<th>Item</th>
<th>64k bit/s UDI Handover</th>
</tr>
</thead>
</table>

**Overview:**

- Check that the PS switches between zones and can handover normally during 64k bit/s UDI communication.

**Test procedure:**

1. Turn the power for the PS ON to set it for the standby state
2. Originate a 64k bit/s UDI call from the PS.
3. Check that the call is setup and communication starts normally by protocol sequence using the test system.
4. Set variable attenuator 2 to the specified attenuation.
5. Set variable attenuator 1 to the maximum setting.
6. Check that the 64k bit/s UDI call is connected normally after handover by protocol sequence using the test system.
7. End the call using the test system.
8. Check that the sequence normally using the test system.

3.4.3.5 Tests for items specified in the Annex of the Standard

3.4.3.5.1 Authentication tests

Authentication tests shall be conducted as a part of the test items in section 3.4.1. Note, however, that authentication random patterns used for these tests shall be decided by the testing organization.

3.4.3.5.2 Subscriber data write-in tests

In relation to subscriber data write-in, the tests specified in the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28) Annex 2 “Standard Pertaining to Subscriber Data Write-in of Personal Handy Phone System (Public)” shall be conducted.
Appendix A : Test items and conditions related to compatibility confirmation on personal station of the WLL system
INTRODUCTION

This appendix is being developed for test items and conditions related to compatibility confirmation on "personal station of the WLL system" which is specified in "Appendix AB WLL standard" of The Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28).

About description methods in this appendix

1. This appendix (The test items and conditions related to compatibility confirmation on personal station of the WLL system) has the same structure as the one of the main text (The main text is defined in the next item No. 3.). The appendix, however, describes only the parts changed from the main text and refers to the main text when the contents of this appendix have the same as the main text.

2. The chapter 1 in the appendix is newly described and refers to the main text in case of need. The chapter 2 and 3 only describe the parts changed from the main text.

3. The "main text" used in this appendix refers the chapters from 1 to 3 and the annex 1 and annex 3 of "PERSONAL HANDY PHONE SYSTEM TEST ITEMS AND CONDITIONS FOR PUBLIC PERSONAL STATION COMPATIBILITY CONFIRMATION ARIB TECHNICAL REPORT Version 3 (RCR TR-23)".

Note: This appendix is not applied to the systems in Japan. The personal station tested according to only this appendix is not to be used in Japan.
Chapter 1  General Facts

1.1 Overview

Test related to compatibility confirmation on "personal station of the WLL System" by using the "Personal Handy Phone System" (hereinafter referred to as "personal station") are performed for each personal station type within the scope of the basic functions and the standardization options specified in the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28). The purpose of these tests is to check the personal station's compatibility with the radio interfaces specified in the appendix AB WLL standard of the RCR STD-28.

As a pre-condition for these tests, the operation of personal stations based on the said WLL standard shall be confirmed thoroughly in the development and manufacturing stages under the sole responsibility of the personal station manufacturers.

The tests are conducted within the scope of the general testing environment, and the setting for the test environment or assignment of functions to the personal station are chosen in a manner that will not burden the telecommunication operators or personal station manufacturers.

1.2 Classification of tests

There are two types of tests for compatibility of personal stations: (1) the connection simulator test, and (2) the compatibility confirmation test. These tests shall be mainly conducted by the personal station manufacturers.

The connection simulator test shall be conducted to check the specified test items under the specified test conditions using a connection simulator.

The compatibility confirmation test shall be conducted by connecting a personal station which has already undergone the connection simulator test for checking the specified test items under the specified test conditions using a test system.
Chapter 2  Connection simulator tests

2.1 Purpose

The connection simulator test is conducted using a connection simulator to check that personal stations produced by individual personal station manufacturers satisfy the WLL standard in the appendix AB of the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28).

2.2 Configuration of the test system

Except for the following items changed, this section conforms to the contents in the section 2.2 of the main text.

The handover function in the connection simulator (CS) is not necessary, because this function is optional in the WLL system.

2.3 Test items and procedures

2.3.1 Test items lists

2.3.1.2 Contents of tests for the communication control methods

Except for the following items changed, this section conforms to the contents in the section 2.3.1.2 of the main text.

The handover test items (test no. from 2-2-2-6 to 2-2-2-10 and from 2-2-2-17 to 2-2-2-24) are out of object, because this function is optional in the WLL system.

2.3.2 Basic test parameters

The connection simulator (CS) shall be used to specify the control procedure based on the following parameters. Parameters which are not described in this section or which are to be modified shall be specified for individual test items and conditions. Radio carrier number is based on the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28). But if the structure of the radio carrier is different from RCR STD-28 by the legal ordinance of the relevant country, it is allowed to change the radio carrier number in this test.

2.3.2.1 Basic parameters

Except for the following items changed, this section conforms to the contents in the section 2.3.2.1 of the main text.

(2) Common parameters for the entire test items

"Recalling-type handover process level" and "Recalling-type handover destination zone selection level" are not specified. The common parameters for the entire test items except them conforms to the contents in the main text.

2.3.2.2 LCCH pattern

Except for the following items changed, this section conforms to the contents in the section 2.3.2.2 of the main text.
(1) Radio channel information broadcasting

<table>
<thead>
<tr>
<th>Pattern No.</th>
<th>n</th>
<th>n_{GROUP}</th>
<th>n_p</th>
<th>n_{SG}</th>
<th>n_{BS}</th>
<th>n_{PCH}</th>
<th>n_{SUB}</th>
<th>n_{1offset}</th>
<th>Control carrier structure</th>
<th>Uplink LCCH timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>60</td>
<td>2</td>
<td>18</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>*</td>
<td>2LCCH independent</td>
<td>Every 10ms</td>
</tr>
<tr>
<td>B</td>
<td>20</td>
<td>2</td>
<td>24</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>*</td>
<td>2LCCH</td>
<td>Every 100ms after 2.5ms interval</td>
</tr>
</tbody>
</table>

*: Absolute slot numbers shall be 1 and 3. The value for n_{1offset} can be freely decided by the PS manufacturer.

(3) 2nd system information broadcasting

<table>
<thead>
<tr>
<th>Pattern No.</th>
<th>Country code</th>
<th>System type</th>
<th>RT / MM protocol Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>*</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>*</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*: The value for country code can be freely decided by the PS manufacturer. However the country code of pattern no.A is different from the one of pattern no.B.

2.3.2.4 Confirmation of authentication

The parameters of authentication are not specified.

2.3.3 Contents of tests

Radio carrier number is based on the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28). But if the structure of the radio carrier is different from RCR STD-28 by the legal ordinance of the relevant country, it is allowed to change the radio carrier number in this test.

2.3.3.1 Contents of tests for the technical requirements for facilities

The following conditions are added in this section.

In the Test no. 1-1-7 "Transmission timing" test, the specifications in the main text of the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28) are applied. Therefore the specification of section 3.2.18 "Transmission timing and transmission jitter" in the appendix AB WLL standard of the RCR STD-28 are not applied to the "Transmission timing" test.

2.3.3.2 Contents of tests for the communication control methods

Except for the following items changed, this section conforms to the contents in the section 2.3.3.2 of the main text.

• The test items about handover are deleted, because this function is optional in the WLL system.
2.3.3.2.1 Basic operation tests

Except for the following items changed, this section conforms to the contents in the section 2.3.3.2.1 of the main text.

In the check items of Test no.2-2-1;

• Location registration can be performed in the pre-registered operator service areas.

• The uplink LCCH transmission timing conforms to "Radio channel information broadcasting message". The TDMA frame 2.5ms after the presently-used downlink LCCH is defined as the 1st TDMA frame. Counting from this 1st TDMA frame, the uplink slots every 2 TDMA frames (10ms) corresponding to the odd-numbered TDMA frames must be used (even-numbered TDMA frames are used for the other LCCH).

2.3.3.2.2 Applicable operation tests

2.3.3.2.2.1 Location registration operation tests

Except for the following items changed, this section conforms to the contents in the section 2.3.3.2.2.1 of the main text.

In the check items of Test no. 2-2-1-10 "Application operation: Location registration; Location registration over 2LCCH (uplink LCCH is 100ms cycle)";

• Radio channel information broadcasting: Pattern A → Pattern B

• Control slot number: 1[Pattern A] → 1 and 3 (3: odd number group) [Pattern B]

2.3.3.2.2.2 Channel switching operation tests during communication

Except for the following items changed, this section conforms to the contents in the section 2.3.3.2.2.2 of the main text.

The test items about handover (Test no. from 2-2-2-6 to 2-2-2-10 and from 2-2-2-17 to 2-2-2-24) are deleted.

2.3.3.3 Tests for items specified in the Appendix of the Standard

These tests are out of object.
Chapter 3  Compatibility Confirmation Tests

3.1 Purpose

Compatibility confirmation tests shall be conducted for personal stations which have already undergone the simulator tests conducted by individual manufacturer. For these tests, personal stations are connected with the testing system to check that the personal station operates normally when using the basic functions, including outgoing call, incoming call, location registration, communication, call ending, etc.

3.4 Tests items and conditions

3.4.1 List of test items

Except for the following items changed, this section conforms to the contents in the section 3.4.1 of the main text.

"Handover operation tests" (Test no. 3-4), "Handover" (Test no. 3-4-1) and "64k bit/s UDI handover" (Test no. 3-4-2) are deleted.

3.4.3 Contents of tests

3.4.3.4 Handover operation tests

This item is deleted.

3.4.3.5 Tests for items specified in the Appendix of the Standard

These tests are out of object.
Annex 1: Correspondence between specified items of the public standard in the Personal Handy Phone System ARIB Standard and the test items of connection simulator tests

Correspondence between the public standard given in the Personal Handy Phone System ARIB Standard Version2 (RCR STD-28) and the test items of connection simulator tests is listed below.

Table 1.1 Relationship between specified items of the public standard in RCR STD-28 and test items of connection simulator tests

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Item specified for public personal station in RCR STD-28</th>
<th>Corresponding connection simulator test item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Link channel establishment phase</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Operation according to the radio channel information broadcasting message</td>
<td>2-1-1, 2-2-1-10</td>
</tr>
<tr>
<td>1.2</td>
<td>Operation according to the system information broadcasting</td>
<td>2-2-3-1 to 2-2-3-6</td>
</tr>
<tr>
<td>1.3</td>
<td>Operation according to the 2nd system information broadcasting</td>
<td>2-1-1, 2-2-1-9</td>
</tr>
<tr>
<td>1.4</td>
<td>Operation according to the area information</td>
<td>2-1-1, 2-2-1-1, 2-2-2-3, 2-2-2-8, 2-2-2-13, 2-2-2-21, 2-2-2-29</td>
</tr>
<tr>
<td>1.5</td>
<td>Operation according to broadcasting reception indication</td>
<td>2-2-3-1 to 2-2-3-5</td>
</tr>
<tr>
<td>1.6</td>
<td>No. of times of retry for link channel (re-) request</td>
<td>2-2-1-4, 2-2-4-4</td>
</tr>
<tr>
<td>2</td>
<td>Operations specified by the layer 3 standards</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Location registration</td>
<td>2-1-1, 2-2-1-1 to 2-2-1-10</td>
</tr>
<tr>
<td>2.2</td>
<td>Outgoing call</td>
<td>2-1-2, 2-1-6, 2-1-10</td>
</tr>
<tr>
<td>2.3</td>
<td>Incoming call</td>
<td>2-1-4, 2-2-1-10, 2-2-5-1, 2-1-8, 2-2-5-2, 2-1-11</td>
</tr>
<tr>
<td>2.4</td>
<td>Disconnection</td>
<td>2-1-3, 2-1-5, 2-2-4-1, 2-1-7, 2-1-9</td>
</tr>
<tr>
<td>2.5</td>
<td>Avoidance of interference (TCH channel switching)</td>
<td>2-2-2-1 to 2-2-2-31, 2-2-7-1 to 2-2-7-4</td>
</tr>
<tr>
<td>2.5.1</td>
<td>Channel switching operation</td>
<td>2-2-2-1, 2-2-2-2, 2-2-2-6, 2-2-2-11, 2-2-2-12, 2-2-2-17, 2-2-2-18, 2-2-2-25, 2-2-2-26</td>
</tr>
<tr>
<td>2.5.2</td>
<td>Judgment conditions</td>
<td>2-2-2-2, 2-2-2-3, 2-2-2-7, 2-2-2-8</td>
</tr>
<tr>
<td>2.5.3</td>
<td>Switching back operation</td>
<td>2-2-2-5, 2-2-2-9, 2-2-2-15, 2-2-2-16, 2-2-2-22, 2-2-2-23, 2-2-2-30</td>
</tr>
<tr>
<td>2.6</td>
<td>Transmission stop</td>
<td>2-2-6-1</td>
</tr>
<tr>
<td>3</td>
<td>General operation</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Operations specified by the Layer 1 standards</td>
<td>Checked by each test item</td>
</tr>
<tr>
<td>3.2</td>
<td>Operations specified by the Layer 2 standards</td>
<td>Checked by each test item</td>
</tr>
</tbody>
</table>
Table 1.2 (1/4)  Relationship between specified items of the public standard in RCR STD-28 and the test items of connection simulator tests

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Item specified for public personal station in RCR STD-28</th>
<th>Corresponding connection simulator test item</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1-1</td>
<td>Location registration : Location registration turning the power for PS ON</td>
<td>1.1, 1.3, 1.4, 2.1</td>
</tr>
<tr>
<td>2-1-2</td>
<td>Outgoing call : PS originates a call and switches to the communication state</td>
<td>2.2</td>
</tr>
<tr>
<td>2-1-3</td>
<td>Disconnection (PS) — A call disconnected by the onhook operation for the PS during communication.</td>
<td>2.4</td>
</tr>
<tr>
<td>2-1-4</td>
<td>Incoming call — After a call is received by the PS, PS is switched to the communication state by the offhook operation.</td>
<td>2.3</td>
</tr>
<tr>
<td>2-1-5</td>
<td>Disconnection (CS) PS receives &quot;disconnect&quot; message from the CS side during communication and disconnects the call.</td>
<td>2.4</td>
</tr>
<tr>
<td>2-1-6</td>
<td>64k bit/s UDI outgoing call - PS originates a 64k bit/s UDI call and switch to the communication state</td>
<td>2.2</td>
</tr>
<tr>
<td>2-1-7</td>
<td>64k bit/s UDI disconnection (PS) - A call disconnected by PS during a 64k bit/s UDI communication</td>
<td>2.4</td>
</tr>
<tr>
<td>2-1-8</td>
<td>64k bit/s UDI incoming call - After PS receiving a 64k bit/s UDI call, PS is switched to the communication state by connecting operation</td>
<td>2.3</td>
</tr>
<tr>
<td>2-1-9</td>
<td>64k bit/s UDI disconnection (CS) - PS receives &quot;Disconnect&quot; message from CS side during a 64k bit/s UDI communication and disconnects the call</td>
<td>2.4</td>
</tr>
<tr>
<td>2-1-10</td>
<td>64k bit/s UDI outgoing call - PS originates a 64k bit/s UDI call and switch to the communication state</td>
<td>2.2</td>
</tr>
<tr>
<td>2-1-11</td>
<td>64k bit/s UDI incoming call - After PS receiving a 64k bit/s UDI call, PS is switched to the communication state by connecting operation</td>
<td>2.3</td>
</tr>
<tr>
<td>2-2-1</td>
<td>Location registration operation test</td>
<td></td>
</tr>
<tr>
<td>2-2-1-1</td>
<td>Location registration while the PS is moving between paging areas</td>
<td>1.4, 2.1</td>
</tr>
<tr>
<td>2-2-1-2</td>
<td>Processing after location registration failure (location registration reject: retry enable)</td>
<td>2.1</td>
</tr>
<tr>
<td>2-2-1-3</td>
<td>Processing after location registration failure (location registration reject: retry disable)</td>
<td>2.1</td>
</tr>
<tr>
<td>2-2-1-4</td>
<td>Processing after location registration failure (no response from the CS side: the number of retries limited)</td>
<td>1.6, 2.1</td>
</tr>
<tr>
<td>2-2-1-5</td>
<td>Link channel establishment re-request transmission operation (with U-wave)</td>
<td>2.1</td>
</tr>
<tr>
<td>2-2-1-6</td>
<td>Operation when the link channel assignment is rejected (with all slots used by CS)</td>
<td>2.1</td>
</tr>
<tr>
<td>2-2-1-7</td>
<td>Location registration when the PS is moving between CSs in the same paging area (location registration not performed)</td>
<td>2.1</td>
</tr>
<tr>
<td>2-2-1-8</td>
<td>Location registration to operators to whom the PS has not been registered (location registration not performed. performed because of no coincidence with the system indication code)</td>
<td>2.1</td>
</tr>
<tr>
<td>2-2-1-9</td>
<td>Location registration to operators to whom the PS has not been registered (location registration not performed. performed because of no coincidence with the country code)</td>
<td>1.3</td>
</tr>
<tr>
<td>2-2-1-10</td>
<td>Location registration over 2LCCH (uplink LCCH is 100ms cycle)</td>
<td>1.1, 2.1, 2.3</td>
</tr>
</tbody>
</table>
### Table 1.2 (2/4)  Relationship between specified items of the public standard in RCR STD-28 and the test items of connection simulator tests

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Item specified for public personal station in RCR STD-28</th>
<th>Corresponding connection simulator test item</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2-2-2</td>
<td>Channel switching operation tests during communication</td>
<td></td>
</tr>
<tr>
<td>2-2-2-1</td>
<td>Channel switching during communication with CS indication : the same CS, same carrier, different slot</td>
<td>2.5, 2.5.1</td>
</tr>
<tr>
<td>2-2-2-2</td>
<td>Channel switching during communication with CS indication : the same CS, different carrier and slot</td>
<td>2.5, 2.5.1, 2.5.2</td>
</tr>
<tr>
<td>2-2-2-3</td>
<td>Channel switching during communication with PS request : the same CS, same carrier different slot</td>
<td>1.4, 2.5, 2.5.2</td>
</tr>
<tr>
<td>2-2-2-4</td>
<td>Channel switching during communication with PS request : the same CS, different carrier and slot</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-2-5</td>
<td>Channel switching during communication with CS indication : the same CS, different carrier and slot (switching back)</td>
<td>2.5, 2.5.3</td>
</tr>
<tr>
<td>2-2-2-6</td>
<td>Handover during communication with CS indication : Recalling-type to the home CS</td>
<td>2.5, 2.5.1</td>
</tr>
<tr>
<td>2-2-2-7</td>
<td>Handover during communication with CS indication : Recalling-type to other CS (in the same paging area)</td>
<td>2.5, 2.5.2</td>
</tr>
<tr>
<td>2-2-2-8</td>
<td>Handover with PS judgment : PS recalling-type to other CS (in the same paging area)</td>
<td>1.4, 2.5, 2.5.2</td>
</tr>
<tr>
<td>2-2-2-9</td>
<td>Handover with CS indication: Recalling-type to other CS (in the same paging area) (switching back)</td>
<td>2.5, 2.5.3</td>
</tr>
<tr>
<td>2-2-2-10</td>
<td>Handover with PS judgment: PS recalling-type to other CS (in other paging area)</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-2-11</td>
<td>64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH</td>
<td>2.5, 2.5.1</td>
</tr>
<tr>
<td>2-2-2-12</td>
<td>64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH</td>
<td>2.5, 2.5.1</td>
</tr>
<tr>
<td>2-2-2-13</td>
<td>64k bit/s UDI channel switching during communication with PS request : the same CS, 1st TCH</td>
<td>1.4, 2.5</td>
</tr>
<tr>
<td>2-2-2-14</td>
<td>64k bit/s UDI channel switching during communication with PS request : the same CS, 2nd TCH</td>
<td>1.4, 2.5</td>
</tr>
<tr>
<td>2-2-2-15</td>
<td>64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH (switching back)</td>
<td>2.5, 2.5.3</td>
</tr>
<tr>
<td>2-2-2-16</td>
<td>64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (switching back)</td>
<td>2.5, 2.5.3</td>
</tr>
<tr>
<td>2-2-2-17</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH</td>
<td>2.5, 2.5.1</td>
</tr>
<tr>
<td>2-2-2-18</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH</td>
<td>2.5, 2.5.1</td>
</tr>
<tr>
<td>2-2-2-19</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 1st TCH</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-2-20</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 2nd TCH</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-2-21</td>
<td>64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area)</td>
<td>1.4, 2.5</td>
</tr>
<tr>
<td>Item no.</td>
<td>Item specified for public personal station in RCR STD-28</td>
<td>Corresponding connection simulator test item</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>2-2-2-22</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area) (switching back), 1st TCH</td>
<td>2.5, 2.5.3</td>
</tr>
<tr>
<td>2-2-2-23</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area) (switching back), 2nd TCH</td>
<td>2.5, 2.5.3</td>
</tr>
<tr>
<td>2-2-2-24</td>
<td>64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area)</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-2-25</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH</td>
<td>2.5, 2.5.1</td>
</tr>
<tr>
<td>2-2-2-26</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH</td>
<td>2.5, 2.5.1</td>
</tr>
<tr>
<td>2-2-2-27</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 1st TCH</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-2-28</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 2nd TCH</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-2-29</td>
<td>64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area)</td>
<td>1.4, 2.5</td>
</tr>
<tr>
<td>2-2-2-30</td>
<td>64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area) (switching back), 1st TCH</td>
<td>2.5, 2.5.3</td>
</tr>
<tr>
<td>2-2-2-31</td>
<td>64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area)</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-3</td>
<td>Restriction operation tests</td>
<td></td>
</tr>
<tr>
<td>2-2-3-1</td>
<td>Operation by restriction group assigned : Restriction group applicable : No access cycle restriction</td>
<td>1.2, 1.5</td>
</tr>
<tr>
<td>2-2-3-2</td>
<td>Operation by restriction group assigned : Restriction group non-applicable : No access cycle restriction</td>
<td>1.2, 1.5</td>
</tr>
<tr>
<td>2-2-3-3</td>
<td>Operation by restriction group assigned : Restriction group applicable : under access cycle restriction</td>
<td>1.2, 1.5</td>
</tr>
<tr>
<td>2-2-3-4</td>
<td>Operation of the PS moving from the non-restriction area to restriction area : Restriction group applicable: No access cycle restriction</td>
<td>1.2, 1.5</td>
</tr>
<tr>
<td>2-2-3-5</td>
<td>Operation of the PS moving from the restriction area to non-restriction area : Restriction group applicable : No access cycle restriction</td>
<td>1.2, 1.5</td>
</tr>
<tr>
<td>2-2-3-6</td>
<td>Operation by CS information : CS unusable</td>
<td>1.2</td>
</tr>
<tr>
<td>2-2-4</td>
<td>Semi-normal outgoing call operation tests</td>
<td></td>
</tr>
<tr>
<td>2-2-4-1</td>
<td>Disconnection by called party busy (on the CS side)</td>
<td>2.4</td>
</tr>
<tr>
<td>2-2-4-2</td>
<td>ID verification at link channel establishment&lt;br&gt;Calling station ID code does not matched up</td>
<td>3.1</td>
</tr>
<tr>
<td>2-2-4-3</td>
<td>ID verification at link channel establishment&lt;br&gt;Called station ID code does not match up</td>
<td>3.1</td>
</tr>
<tr>
<td>2-2-4-4</td>
<td>Modifier of synchronization burst verification at link channel establishment - modifier code for 1st TCH does not match up</td>
<td>1.6</td>
</tr>
<tr>
<td>2-2-4-5</td>
<td>Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up</td>
<td>3.1</td>
</tr>
<tr>
<td>2-2-4-6</td>
<td>Unavailable 2nd TCH assignment at 64k bit/s communication</td>
<td>3.1</td>
</tr>
</tbody>
</table>
Table 1.2 (4/4)  Relationship between specified items of the public standard in RCR STD-28 and the test items of connection simulator tests

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<tr>
<th>Item no.</th>
<th>Item specified for public personal station in RCR STD-28</th>
<th>Corresponding connection simulator test item</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2-4-7</td>
<td>Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up</td>
<td>3.1</td>
</tr>
<tr>
<td>2-2-4-8</td>
<td>Additional TCH request rejection in combination of the Two slot fixed type CS and the Slot changeable type PS in 64k bits/s UDI call originating</td>
<td>3.1</td>
</tr>
<tr>
<td>2-2-4-9</td>
<td>Additional TCH request rejection in combination of the Slot changeable type CS and the Two slot fixed type PS in 64k bits/s UDI call originating</td>
<td>3.1</td>
</tr>
<tr>
<td>2-2-5</td>
<td>Semi-normal incoming call operation tests</td>
<td></td>
</tr>
<tr>
<td>2-2-5-1</td>
<td>Incoming call to PS in the same paging group but different PS number.</td>
<td>2.3</td>
</tr>
<tr>
<td>2-2-5-2</td>
<td>64k bit/s UDI incoming call for a PS which does not support 64k bit/s communication</td>
<td>2.3</td>
</tr>
<tr>
<td>2-2-5-3</td>
<td>Additional TCH request rejection in combination of the Two slot fixed type CS and the Slot changeable type PS in 64k bits/s UDI call terminating</td>
<td>2.3</td>
</tr>
<tr>
<td>2-2-5-4</td>
<td>Additional TCH request rejection in combination of the Slot changeable type CS and the Two slot fixed type PS in 64k bits/s UDI call terminating</td>
<td>2.3</td>
</tr>
<tr>
<td>2-2-6</td>
<td>Transmission stop operation test</td>
<td></td>
</tr>
<tr>
<td>2-2-6-1</td>
<td>Transmission halt, radio channel release</td>
<td>2.6</td>
</tr>
<tr>
<td>2-2-7</td>
<td>Additional channel establishment and disconnection during the communication tests</td>
<td></td>
</tr>
<tr>
<td>2-2-7-1</td>
<td>64k bit/s UDI additional channel synchronization establishment with CS</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-7-2</td>
<td>64k bit/s UDI 2nd TCH disconnection with CS</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-7-3</td>
<td>64k bit/s UDI additional channel synchronization establishing with PS</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-7-4</td>
<td>64k bit/s UDI 2nd TCH disconnection with PS judgement</td>
<td>2.5</td>
</tr>
<tr>
<td>2-2-7-5</td>
<td>64k bit/s UDI additional channel synchronization establishment failure in PS judgement process</td>
<td>3.1</td>
</tr>
</tbody>
</table>
Annex 2: Reference tests for network protection and efficient use of frequencies

In addition to the "technical requirements for the PS as terminal equipment" specified in the Standard, the following test items shall be conducted.

<table>
<thead>
<tr>
<th>Test no.</th>
<th>A-1</th>
<th>Item</th>
<th>Function to prevent updating of PS specific information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check item:</td>
<td></td>
<td></td>
<td>The memory device for PS specific information (information for identifying the pertinent PS and used for channel setting) must not be easily removable. Also, the PS specific information cannot be updated easily. In addition, the PS specific information other than part used by the user cannot be accessed easily by third parties.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test no.</th>
<th>A-2</th>
<th>Item</th>
<th>Restriction for autonomous response detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check item:</td>
<td></td>
<td></td>
<td>In case of the PS which has an autonomous detecting function for a response from the remote terminal equipment; when there is no acknowledgment from the remote terminal, the PS must transmit a signal for specifying the remote terminal, then transmit a signal for disconnecting the channel within 1 minute to stop transmission.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test no.</th>
<th>A-3</th>
<th>Item</th>
<th>Restriction for automatic recalling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check item:</td>
<td></td>
<td></td>
<td>When automatic recalling is performed (a call is originated repeatedly to the party which has not answered), the number of times for recalling must be twice or less. However, when 3 minutes have elapsed after the first call or in case of emergencies such as fire, burglary, etc., other specifications shall apply.</td>
</tr>
<tr>
<td>Remarks:</td>
<td></td>
<td></td>
<td>• The first call is not included in the number of times of recalling.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Recalling the same number after 3 minutes have elapsed are assumed as another call origination.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test no.</th>
<th>A-4</th>
<th>Item</th>
<th>Transmission power other than for communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check item:</td>
<td></td>
<td></td>
<td>Transmission output (absolute level) for the PS when communicating with an analog terminal must be less than -8dB (average level) and must not exceed 0dB (maximum level) at D/A conversion (when digital signals are converted into analog signals, excluding transmission power for communication).</td>
</tr>
</tbody>
</table>
Annex 3 : List of test items using the connection simulator

(1) Test items related to the technical requirements for radio facilities

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
<th>M/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Transmission characteristics</td>
<td></td>
</tr>
<tr>
<td>1-1-1</td>
<td>Transmission power</td>
<td>M</td>
</tr>
<tr>
<td>1-1-2</td>
<td>Transient response characteristics of burst transmission</td>
<td>M</td>
</tr>
<tr>
<td>1-1-3</td>
<td>Frequency stability</td>
<td>M</td>
</tr>
<tr>
<td>1-1-4</td>
<td>Modulation accuracy</td>
<td>M</td>
</tr>
<tr>
<td>1-1-5</td>
<td>Transmission rate accuracy</td>
<td>M</td>
</tr>
<tr>
<td>1-1-6</td>
<td>Physical slot transmission condition</td>
<td>M</td>
</tr>
<tr>
<td>1-1-7</td>
<td>Transmission timing</td>
<td>M</td>
</tr>
<tr>
<td>1-1-8</td>
<td>Transmission jitter</td>
<td>M</td>
</tr>
<tr>
<td>1-2</td>
<td>Reception characteristics</td>
<td></td>
</tr>
<tr>
<td>1-2-1</td>
<td>Sensitivity</td>
<td>M</td>
</tr>
<tr>
<td>1-2-2</td>
<td>Receive signal strength indicator accuracy</td>
<td>M</td>
</tr>
<tr>
<td>1-2-3</td>
<td>Bit error rate floor performance</td>
<td>M</td>
</tr>
</tbody>
</table>

M: Mandatory
O: Option (Select according to PS function)
### (2) Test items for communication control methods

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
<th>M/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>Basic operation tests</td>
<td></td>
</tr>
<tr>
<td>2-1-1</td>
<td>Location registration — Location registration on turning the power for PS ON</td>
<td>M</td>
</tr>
<tr>
<td>2-1-2</td>
<td>Outgoing call — PS originates a call and switches to the communication state</td>
<td>M</td>
</tr>
<tr>
<td>2-1-3</td>
<td>Disconnection (PS) — A call disconnected by the onhook operation for the PS during communication.</td>
<td>M</td>
</tr>
<tr>
<td>2-1-4</td>
<td>Incoming call — After a call is received by the PS, PS is switched to the communication state by the offhook operation</td>
<td>M</td>
</tr>
<tr>
<td>2-1-5</td>
<td>Disconnection (CS) — PS receives &quot;disconnect&quot; message from the CS side during communication and disconnects the call.</td>
<td>M</td>
</tr>
<tr>
<td>2-1-6</td>
<td>64k bit/s UDI outgoing call — PS originates a 64k bit/s UDI call and switch to the communication state</td>
<td>O*1</td>
</tr>
<tr>
<td>2-1-7</td>
<td>64k bit/s UDI disconnection (PS) — A call disconnected by PS during a 64k bit/s UDI communication</td>
<td>O*1</td>
</tr>
<tr>
<td>2-1-8</td>
<td>64k bit/s UDI incoming call — After PS receiving a 64k bit/s UDI call, PS is switched to the communication state by connecting operation</td>
<td>O*1</td>
</tr>
<tr>
<td>2-1-9</td>
<td>64k bit/s UDI disconnection (CS) — PS receives &quot;Disconnect&quot; message from CS side during a 64k bit/s UDI communication and disconnects the call</td>
<td>O*1</td>
</tr>
<tr>
<td>2-1-10</td>
<td>64k bit/s UDI outgoing call — PS originates a 64k bit/s UDI call and switch to the communication state</td>
<td>O*3</td>
</tr>
<tr>
<td>2-1-11</td>
<td>64k bit/s UDI incoming call — After PS receiving a 64k bit/s UDI call, PS is switched to the communication state by connecting operation</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2</td>
<td>Application operation tests</td>
<td></td>
</tr>
<tr>
<td>2-2-1</td>
<td>Location registration operation tests</td>
<td></td>
</tr>
<tr>
<td>2-2-1-1</td>
<td>Location registration while the PS is moving between paging areas</td>
<td>O</td>
</tr>
<tr>
<td>2-2-1-2</td>
<td>Processing after location registration fails (location registration reject: retry enable)</td>
<td>O</td>
</tr>
<tr>
<td>2-2-1-3</td>
<td>Processing after location registration fails (location registration reject: retry disable)</td>
<td>O</td>
</tr>
<tr>
<td>2-2-1-4</td>
<td>Processing after location registration fails (no response from the CS side: the number of retries limited)</td>
<td>O</td>
</tr>
<tr>
<td>2-2-1-5</td>
<td>Link channel establishment re-request transmission operation (with U-wave)</td>
<td>O</td>
</tr>
<tr>
<td>2-2-1-6</td>
<td>Operation when the link channel assignment is rejected (with all slots used by CS)</td>
<td>O</td>
</tr>
<tr>
<td>2-2-1-7</td>
<td>Location registration when the PS is moving between CSs in the same paging area (location registration not performed)</td>
<td>O</td>
</tr>
<tr>
<td>2-2-1-8</td>
<td>Location registration to operators to whom the PS has not been registered (location registration not performed. because of no coincidence with the system indication code)</td>
<td>O</td>
</tr>
</tbody>
</table>

M: Mandatory  
O: Option (Select according to PS function)
<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
<th>M/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2-1-9</td>
<td>Location registration to operators to whom the PS has not been registered — location registration not performed because of no coincidence with the country code</td>
<td>O</td>
</tr>
<tr>
<td>2-2-1-10</td>
<td>Location registration over 2LCCH (uplink LCCH is 100ms cycle)</td>
<td>O</td>
</tr>
<tr>
<td>2-2-2</td>
<td>Channel switching operation tests during communication</td>
<td></td>
</tr>
<tr>
<td>2-2-2-1</td>
<td>Channel switching during communication with CS indication: the same CS, same carrier, different slot</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-2</td>
<td>Channel switching during communication with CS indication: the same CS, different carrier and slot</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-3</td>
<td>Channel switching during communication with PS request: the same CS, same carrier different slot</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-4</td>
<td>Channel switching during communication with PS request: the same CS, different carrier and slot</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-5</td>
<td>Channel switching during communication with CS indication: the same CS, different carrier and slot (switching back)</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-6</td>
<td>Handover during communication with CS indication: Recalling-type to the home CS</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-7</td>
<td>Handover during communication with CS indication: Recalling-type to other CS (in the same paging area)</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-8</td>
<td>Handover with PS judgment: PS recalling-type to other CS (in the same paging area)</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-9</td>
<td>Handover with CS indication: Recalling-type to other CS (in the same paging area)</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-10</td>
<td>Handover with PS judgment: PS recalling-type to other CS (in other paging area)</td>
<td>M</td>
</tr>
<tr>
<td>2-2-2-11</td>
<td>64k bit/s UDI channel switching during communication with CS indication: the same CS, 1st TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-12</td>
<td>64k bit/s UDI channel switching during communication with CS indication: the same CS, 2nd TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-13</td>
<td>64k bit/s UDI channel switching during communication with PS request: the same CS, 1st TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-14</td>
<td>64k bit/s UDI channel switching during communication with PS request: the same CS, 2nd TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-15</td>
<td>64k bit/s UDI channel switching during communication with CS indication: the same CS, 1st TCH (switching back)</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-16</td>
<td>64k bit/s UDI channel switching during communication with CS indication: the same CS, 2nd TCH (switching back)</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-17</td>
<td>64k bit/s UDI handover with CS indication: Recalling-type to the home CS, 1st TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-18</td>
<td>64k bit/s UDI handover with CS indication: Recalling-type to the home CS, 2nd TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-19</td>
<td>64k bit/s UDI handover with CS indication: Recalling-type to other CS (in the same paging area), 1st TCH</td>
<td>O*1</td>
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M: Mandatory
O: Option (Select according to PS function)
<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
<th>M/O</th>
</tr>
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<tbody>
<tr>
<td>2-2-2-20</td>
<td>64k bit/s UDI handover with CS indication (in the same paging area), 2nd TCH : Recalling-type to other CS (in the same paging area), 2nd TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-21</td>
<td>64k bit/s UDI handover with PS judgment (in the same paging area) : PS recalling-type to other CS</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-22</td>
<td>64k bit/s UDI handover with CS indication (switching back), 1st TCH : Recalling-type to other CS (in the same paging area) (switching back), 1st TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-23</td>
<td>64k bit/s UDI handover with CS indication (switching back), 2nd TCH : PS recalling-type to other CS (in the same paging area) (switching back), 2nd TCH</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-24</td>
<td>64k bit/s UDI handover with PS judgment (in other paging area) : PS recalling-type to other CS</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-2-25</td>
<td>64k bit/s UDI handover with CS indication (in other paging area), 1st TCH : Recalling-type to the home CS, 1st TCH</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-2-26</td>
<td>64k bit/s UDI handover with CS indication, 2nd TCH : Recalling-type to the home CS, 2nd TCH</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-2-27</td>
<td>64k bit/s UDI handover with CS indication (in the same paging area), 1st TCH : Recalling-type to other CS (in the same paging area), 1st TCH</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-2-28</td>
<td>64k bit/s UDI handover with CS indication (in the same paging area), 2nd TCH : Recalling-type to other CS (in the same paging area), 2nd TCH</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-2-29</td>
<td>64k bit/s UDI handover with PS judgment (in the same paging area) : PS recalling-type to other CS</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-2-30</td>
<td>64k bit/s UDI handover with CS indication (in the same paging area) (switching back), 1st TCH : Recalling-type to other CS (in the same paging area) (switching back), 1st TCH</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-2-31</td>
<td>64k bit/s UDI handover with PS judgment (in other paging area) : PS recalling-type to other CS</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-3</td>
<td>Restriction operation tests</td>
<td></td>
</tr>
<tr>
<td>2-2-3-1</td>
<td>Operation by restriction group assigned : Restriction group applicable : No access cycle restriction</td>
<td>M</td>
</tr>
<tr>
<td>2-2-3-2</td>
<td>Operation by restriction group assigned : Restriction group non-applicable : No access cycle restriction</td>
<td>M</td>
</tr>
<tr>
<td>2-2-3-3</td>
<td>Operation by restriction group assigned : Restriction group applicable : under access cycle restriction</td>
<td>M</td>
</tr>
<tr>
<td>2-2-3-4</td>
<td>Operation of the PS moving from the non-restriction area to restriction area Restriction group applicable : No access cycle restriction</td>
<td>O</td>
</tr>
<tr>
<td>2-2-3-5</td>
<td>Operation of the PS moving from the restriction area to non-restriction area Restriction group applicable : No access cycle restriction</td>
<td>O</td>
</tr>
<tr>
<td>2-2-3-6</td>
<td>Operation by CS information : CS unusable</td>
<td>O</td>
</tr>
<tr>
<td>2-2-4</td>
<td>Semi-normal outgoing call operation tests</td>
<td></td>
</tr>
<tr>
<td>2-2-4-1</td>
<td>Disconnection by called party busy (on the CS side)</td>
<td>M</td>
</tr>
<tr>
<td>2-2-4-2</td>
<td>ID verification at link channel establishment Calling station ID code does not matched up</td>
<td>M</td>
</tr>
<tr>
<td>2-2-4-3</td>
<td>ID verification at link channel establishment Called station ID code does not match up</td>
<td>M</td>
</tr>
<tr>
<td>2-2-4-4</td>
<td>Modifier of synchronization burst verification at link channel establishment - modifier code for 1st TCH does not match up</td>
<td>M</td>
</tr>
<tr>
<td>2-2-4-5</td>
<td>Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up</td>
<td>O*1</td>
</tr>
<tr>
<td>Test no.</td>
<td>Test item</td>
<td>M/O</td>
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<tr>
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<td>---------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>2-2-4-6</td>
<td>Unavailable 2nd TCH assignment at 64k bit/s communication</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-4-7</td>
<td>Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-4-8</td>
<td>Additional TCH request rejection in combination of the Two slot fixed type CS and the Slot changeable type PS in 64k bits/s UDI call originating</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-4-9</td>
<td>Additional TCH request rejection in combination of the Slot changeable type CS and the Two slot fixed type PS in 64k bits/s UDI call originating</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-5</td>
<td>Semi-normal incoming call operation tests</td>
<td></td>
</tr>
<tr>
<td>2-2-5-1</td>
<td>Incoming call to PS in the same paging group but different PS number</td>
<td>M</td>
</tr>
<tr>
<td>2-2-5-2</td>
<td>64k bit/s UDI incoming call for a PS which does not support 64k bit/s communication</td>
<td>O*2</td>
</tr>
<tr>
<td>2-2-5-3</td>
<td>Additional TCH request rejection in combination of the Two slot fixed type CS and the Slot changeable type PS in 64k bits/s UDI call terminating</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-5-4</td>
<td>Additional TCH request rejection in combination of the Slot changeable type CS and the Two slot fixed type PS in 64k bits/s UDI call terminating</td>
<td>O*1</td>
</tr>
<tr>
<td>2-2-6</td>
<td>Transmission stop operation test</td>
<td></td>
</tr>
<tr>
<td>2-2-6-1</td>
<td>Transmission halt, radio channel release</td>
<td>M</td>
</tr>
<tr>
<td>2-2-7</td>
<td>Additional channel establishment and disconnection during the communication tests</td>
<td></td>
</tr>
<tr>
<td>2-2-7-1</td>
<td>64k bit/s UDI additional channel synchronization establishment with CS</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-7-2</td>
<td>64k bit/s UDI 2nd TCH disconnection with CS</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-7-3</td>
<td>64k bit/s UDI additional channel synchronization establishing with PS</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-7-4</td>
<td>64k bit/s UDI 2nd TCH disconnection with PS judgement</td>
<td>O*3</td>
</tr>
<tr>
<td>2-2-7-5</td>
<td>64k bit/s UDI additional channel synchronization establishment failure in PS judgement process</td>
<td>O*3</td>
</tr>
</tbody>
</table>

M : Mandatory
O : Option

*1 : If PS is able to achieve a 64k bit/s communication with using 2 TCH simultaneously, these tests are required.

*2 : If PS is not tested by the test items marked *1, this test is required.

*3 : If PS is able to achieve the slot changeable type 64k bit/s UDI, these tests are required.
(3) Test items for those specified by the Annex of the Standard

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
<th>M/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3</td>
<td>Tests for items specified in the Annex</td>
<td></td>
</tr>
<tr>
<td>2-3-1</td>
<td>Authentication tests</td>
<td>M</td>
</tr>
<tr>
<td>2-3-2</td>
<td>Subscriber data write-in tests</td>
<td>M</td>
</tr>
</tbody>
</table>

M: Mandatory
O: Option (Select according to PS function)

(4) Reference tests for network protection and efficient use of frequencies

<table>
<thead>
<tr>
<th>Test no.</th>
<th>Test item</th>
<th>M/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>Function to prevent updating of PS specific information</td>
<td>M</td>
</tr>
<tr>
<td>A-2</td>
<td>Restriction for autonomous response detection</td>
<td>O</td>
</tr>
<tr>
<td>A-3</td>
<td>Restriction for automatic recalling</td>
<td>O</td>
</tr>
<tr>
<td>A-4</td>
<td>Transmission power other than for communication</td>
<td>O</td>
</tr>
</tbody>
</table>

M: Mandatory
O: Option (Select according to PS function)
AMENDMENT HISTORY

About description methods in this document

The descriptions about version numbers of RCR TR-23 in this document, related standards
and other related technical reports are defined as below.

Basically, there are 2 patterns in the description on version numbers.

1. Regarding the description on the protocol version, in most of cases, a version number shall
be expressed just itself as indicated in (1), but including all of its revision numbers if the
revision numbers exist (See (1)).

2. However, in some cases, a version number might be expressed as 'version number + its
revision number' style as indicated in (2).

(1) Version x → Version x.0 and Version x.n (n: If described only 'Version x',
Version x include all revision number of Version x, n=1, 2, ...)

(2) Version x Rev. - y → Version x.y

2.3-1 4 2.3.1.2 Test items related to the communication control methods
2-1 Basic operation tests
2-1-10 64k bit/s UDI outgoing call
— PS originates a 64k bit/s UDI call and switch to the communication state (Note 4,5)
2-1-11 64k bit/s UDI incoming call
— After PS receiving a 64k bit/s UDI call, PS is switched to the communication
state by connecting operation (Note 4,5)

2.3-2 5 2-2 Application operation tests
2-2-2 Channel switching operation tests during communication
2-2-2-23 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same
paging area) (switching back), 2nd TCH (Note 2,6)
2-2-2-25 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st
TCH (Note 4,5)
2-2-2-26 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd
TCH (Note 4,5)
2-2-2-27 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same
paging area), 1st TCH (Note 4,5)
2-2-2-28 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same
paging area), 2nd TCH (Note 4,5)
2-2-2-29 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the
same paging area) (Note 4,5)
2-2-2-30 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same
paging area) (switching back), 1st TCH (Note 4,5)
2-2-2-31 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS in other
paging area (Note 4,5)

2.3-3 6 2-2-4 Semi-normal outgoing call operation tests
2-2-4-5 Modifier of synchronization burst verification at 64k bit/s communication - modifier
code for 2nd TCH does not match up (Note 2,6)
2-2-4-7 Modifier of synchronization burst verification at 64k bit/s communication - modifier
code for 2nd TCH does not match up (Note 4,5)
2-2-4-8 Additional TCH request rejection in combination of the Two slot fixed type CS and
the Slot changeable type PS in 64k bits/s UDI call originating (Note 4)
2-2-4-9 Additional TCH request rejection in combination of the Slot changeable type CS
and the Two slot fixed type PS in 64k bits/s UDI call originating (Note 2,6)
2.3-4  6
2-2-5 Semi-normal incoming call operation tests
2-2-5-3 Additional TCH request rejection in combination of the Two slot fixed type CS and
the Slot changeable type PS in 64k bits/s UDI call terminating (Note 4)
2-2-5-4 Additional TCH request rejection in combination of the Slot changeable type CS
and the Two slot fixed type PS in 64k bits/s UDI call terminating (Note 2.6)

2.3-5  6
2-2-7 Additional channel establishment and disconnection during the communication tests
2-2-7-1 64k bit/s UDI additional channel synchronization establishment with CS indication
(Note 4)
2-2-7-2 64k bit/s UDI 2nd TCH disconnection with CS indication (Note 4)
2-2-7-3 64k bit/s UDI additional channel synchronization establishing with PS judgement
(Note 4)
2-2-7-4 64k bit/s UDI 2nd TCH disconnection with PS judgement (Note 4)
2-2-7-5 64k bit/s UDI additional channel synchronization establishment failure in PS
judgement process (Note 4)

2.3-6  7
Note 4: If PS is able to achieve a 64k bit/s UDI communication in the Slot changeable mode,
these tests are required.
Note 5: In these tests, it is confirmed that the 64k bit/s UDI communication is achieved by using
a TCH.
Note 6: In these tests, PS is set to operate the Two slot fixed type 64k bit/s UDI.

2.3-7  11
2.3.3.1 Contents of tests for the technical requirements for facilities
2.3.8  21-22
Test No. 2-1-10, 2-1-11 are added.
2.3-9  27
Test No. 2-2-1-5
Test procedure:
2. Apply 44 45dBµV signals of carrier number "H" by the signal generator, etc.
2.3-10  57-63
Test No. 2-2-2-25 ~ 2-2-2-31 are added.
2.3-11  76-78
Test No. 2-2-4-7 ~ 2-2-4-9 are added.
2.3-12  81-82
Test No. 2-2-5-3, 2-2-5-4 are added.
2.3-13  84-88
2.3.3.2.2.7 Additional channel establishment and disconnection during the communication
tests
This item is added.
Test No. 2-2-7-1 ~ 2-2-7-5 are added.
AN1-1  104
Table 1.1 Relationship between specified items of the public standard in RCR STD-28 and test
items of connection simulator tests

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Item specified for public personal station in RCR STD-28</th>
<th>Corresponding connection simulator test item</th>
</tr>
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<tbody>
<tr>
<td>1.4</td>
<td>Operation according to the area information</td>
<td>2-1-1, 2-2-1-1, 2-2-2-3, 2-2-2-8, 2-2-2-13, 2-2-2-21, 2-2-2-29</td>
</tr>
<tr>
<td>2.2</td>
<td>Outgoing call</td>
<td>2-1-2, 2-1-6, 2-2-1-10</td>
</tr>
<tr>
<td>2.3</td>
<td>Incoming call</td>
<td>2-1-4, 2-2-1-10, 2-2-5-1, 2-1-8, 2-2-5-2, 2-1-11</td>
</tr>
<tr>
<td>2.5</td>
<td>Avoidance of interference (TCH channel switching)</td>
<td>2-2-2-1 to 2-2-2-44 31 2-2-7-1 to 2-2-7-4</td>
</tr>
<tr>
<td>2.5.1</td>
<td>Channel switching operation</td>
<td>2-2-2-1 2-2-2-2, 2-2-2-6, 2-2-2-11, 2-2-2-12, 2-2-2-17, 2-2-2-18, 2-2-2-25, 2-2-2-26</td>
</tr>
<tr>
<td>2.5.3</td>
<td>Switching back operation</td>
<td>2-2-2-5, 2-2-2-9, 2-2-2-15, 2-2-2-16, 2-2-2-22, 2-2-2-23, 2-2-2-30</td>
</tr>
</tbody>
</table>

105 Table 1.2 (1/4) Test No. 2-1-10, 2-1-11 are added.
107 Table 1.2 (3/4) Test No. 2-2-2-25 ~ 2-2-2-31 are added.
108 Table 1.2 (4/4) Test No. 2-2-4-7 ~ 2-2-4-9, 2-2-5-3, 2-2-5-4, 2-2-7, 2-2-7-1 ~ 2-2-7-5 are added.
<table>
<thead>
<tr>
<th>Number</th>
<th>Page</th>
<th>Amendments</th>
</tr>
</thead>
</table>
| AN2-1  | 109  | Test No. A-4 Item Transmission power other than for communication  
Check item:  
Transmission output (absolute level) for the PS when communicating with an analog terminal must be less than $-15 \text{ dB}$ (average level) and must not exceed $0 \text{ dB}$ (maximum level) at D/A conversion (when digital signals are converted into analog signals, excluding transmission power for communication). |
| AN3-1  | 111  | Annex 3 : List of test items using the connection simulator  
(2) Test items for communication control methods  
Test No. 2-1-10, 2-1-11, 2-2-2-25 ~ 2-2-2-31, 2-2-4-7 ~ 2-2-4-9, 2-2-5-3, 2-2-5-4, 2-2-7, 2-2-7-1 ~ 2-2-7-5 are added. |
| AN3-2  | 114  | In lower part of the table, the following description is added.  
*3 : If PS is able to achieve the slot changeable type 64k bit/s UDI, these tests are required. |
### AMENDMENT HISTORY

<table>
<thead>
<tr>
<th>Number</th>
<th>Page</th>
<th>Amendments</th>
</tr>
</thead>
</table>
| 2.3-1  | 8    | 2.3.2.1 Basic parameters  
(2) Common parameters for the entire test items  
**Note**  
→ **Note 1**  
2.3-2  | 8    | Note 2: If each test is going by selecting bearer capability as UDI, words “converse” shall be  
recognized as same meaning of “communicate” and check shall be done by protocol  
sequence but not by transmission/reception volume using handset.  
2.3-3  | 8    | 2.3.2.1 Basic parameters  
(3) Parameters specified for each test item  
Communication carrier number:  
Carrier number for 26.1 MHz band PS:  
M: 39, H: 82, L: 251  
3.4-1  | 91   | 3.4.1 List of test items  
3-2-1 Outgoing call/communication/disconnection by PS  
(Note 3)  
3.4-2  | 91   | 3-3-1Incoming call/communication/disconnection by the test system  
(Note 3)  
3.4-3  | 91   | 3-4-1 Handover  
(Note 3)  
3.4-4  | 91   | Note 3: If each test is going by selecting bearer capability as UDI, words “converse” shall  
be recognized same meaning of “communicate” and check shall be done by  
protocol sequence but not by transmission/reception volume using handset.  
3.4-5  | 92   | 3.4.3.2 Outgoing call/disconnection operation tests  
**Test no. 3-2-1 Item** Outgoing call/communication/disconnection by PS  
**Test procedure:**  
3. Check that the call is setup normally and can converse normally over the PS.  
(Note)  
(Note) If the bearer capability is selected as unrestricted digital information (UDI), test  
procedure 3 is replaced as “Check that the call is setup and communication starts  
normally by protocol sequence using the test system”.  
3.4-6  | 93   | 3.4.3.3 Incoming call/call ending operation tests  
**Test no. 3-3-1 Item** Incoming call/communication/disconnection by the test system  
**Test procedure:**  
3. Check that ringing tone is generated by the PS, then answer the call.  
(Note 1)  
(Note) If the bearer capability is selected as unrestricted digital information (UDI), the word  
h “ringing tone” in test procedure 3 shall be recognized same meaning as “receiving call  
indication”.  
(Note 2) If the PS has a autonomous answering function, test procedure 3 can be omitted.  
(Note 2) If the bearer capability is selected as unrestricted digital information (UDI), test  
procedure 4 is replaced as “Check that the call is setup and communication starts  
normally by protocol sequence using the test system”.  
3.4-7  | 94   | **Test no. 3-3-2 Item** 64k bit/s UDI Incoming call/communication/disconnection by the test system  
**Test procedure:**  
3. Check the receiving call indication, then answer the call.  
(Note)  
(Note) If the PS has a autonomous answering function, test procedure 3 can be omitted.
### 3.4.3.4 Handover operation tests

**Test no. 3-4-1 Item Handover**

**Test procedure:**

3. Check that the call is put through normally. *(Note 1)*

6. Check that the call is connected normally after handover. *(Note 2)*

*(Note 1)* If the bearer capability is selected as unrestricted digital information (UDI), test procedure 3 is replaced as “Check that the call is setup and communication starts normally by protocol sequence using the test system”.

*(Note 2)* If the bearer capability is selected as unrestricted digital information (UDI), test procedure 6 is replaced as “Check that the call is connected normally after handover by protocol sequence using the test system”.

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| 2.1-1  | 2    | 2.1 Purpose  
In the 2nd line, the Personal Handy Phone System ARIB Standard Version 2 (RCR STD-28).  |
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2-1-6 64k bit/s UDI outgoing call  
2-1-7 64k bit/s UDI disconnection (PS)  
2-1-8 64k bit/s UDI incoming call  
2-1-9 64k bit/s UDI disconnection (CS)  |
| 2.3-2  | 4-5  | 2-2 Application operation tests  
2-2-1 Channel switching operation tests during communication  
2-2-2-11 64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH (Note 2)  
2-2-2-12 64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (Note 2)  
2-2-2-13 64k bit/s UDI channel switching during communication with PS request : the same CS, 1st TCH (Note 2)  
2-2-2-14 64k bit/s UDI channel switching during communication with PS request : the same CS, 2nd TCH (Note 2)  
2-2-2-15 64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH (switching back) (Note 2)  
2-2-2-16 64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (switching back) (Note 2)  
2-2-2-17 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH (Note 2)  
2-2-2-18 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH (Note 2)  
2-2-2-19 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 1st TCH (Note 2)  
2-2-2-20 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 2nd TCH (Note 2)  
2-2-2-21 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area) (Note 2)  
2-2-2-22 64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area) (switching back), 1st TCH (Note 2)  
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        |       | 2-2-4-4 Modifier of synchronization burst verification at link channel establishment - modifier code for 1st TCH does not match up  
        |       | 2-2-4-5 Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up (Note 2)  
        |       | 2-2-4-6 Unavailable 2nd TCH assignment at 64k bit/s communication (Note 2) |
| 2.3-4  | 6    | 2-2-5 Semi-normal incoming call operation tests  
        |       | 2-2-5-2 64k bit/s UDI incoming call for a PS which does not support 64k bit/s communication (Note 3) |
| 2.3-5  | 7    | 2.3.2.1 Basic parameters  
        |       | (3) Parameters specified for each test item  
        |       | Communication carrier number : any of 39, 77 or 1 any of M, H, L  
        |       | Carrier number for 23.1 MHz band PS : M : 39, H : 77, L : 1  
        |       | Note 2: If PS is able to achieve a 64k bit/s communication with using 2 TCH simultaneously, these tests are required.  
        |       | Note 3: If PS does is not tested by the test items marked note 2, this test is required. |
| 2.3-6  | 8    | 2.3.2.2 LCCH pattern  
        |       | (3) 2nd System information broadcasting  
        |       | In the table,  
        |       | RT / MM protocol version of Pattern no. A and B : version 2 3  
        |       | 2.3.3.1 Contents of tests for the technical requirements for facilities  
        |       | the column of Measurement carrier in the table,  
        |       | L → M, L → H  
        |       | 2.3.3.2 Contents of tests for the communication control methods  
        |       | the column of Test conditions in the table,  
        |       | Communication carrier number :  
        |       | L → M, L → H  
        |       | 2.3.3.2.1 Tests for items specified in the Attachment  
        |       | 2.3.3.1 Authentication tests  
        |       | Regarding authentication, tests shall be conducted to confirm the authentication for the algorithms described in the Personal Handy Phone System ARIB Standard Version 3 Annexe 1 "Standard Pertaining to Authentication of Personal Handy Phone System (Public)"  
        |       | 2.3.3.3.2 Subscriber data write-in tests  
        |       | Regarding subscriber data write-in, the tests specified in the Personal Handy Phone System ARIB Standard Version 3 Annexe 2 "Standard Pertaining to Subscriber Data Write-in of Personal Handy Phone System (Public)" shall be conducted.  
        |       | Test No. 2-1-6 ~ 2-1-9 are added. |
| 2.3-7  | 9    | Test No. 2-2-1-5  
        |       | In the table,  
        |       | Test procedure:  
        |       | carrier number  
        |       | L → M  
        |       | Test No. 2-2-2-11 ~ 2-2-2-24 are added. |
| 2.3-8  | 11   | Test No. 2-2-4-4 ~ 2-2-4-6 are added. |
| 2.3-9  | 12~83| Test No. 2-2-5-2 are added. |
| 2.3-10 | 17~20| Test No. 2-2-2-11 ~ 2-2-2-24 are added. |
| 2.3-11 | 27   | Test No. 2-2-1-5  
        |       | In the table,  
        |       | Test procedure:  
        |       | carrier number  
        |       | L → M  
        |       | Test No. 2-2-2-11 ~ 2-2-2-24 are added. |
| 2.3-12 | 43~56| Test No. 2-2-4-4 ~ 2-2-4-6 are added. |
| 2.3-13 | 73~75| Test No. 2-2-5-2 are added. |
| 2.3-14 | 80   | Test No. 2-2-2-11 ~ 2-2-2-24 are added. |
| 2.3-15 | 89   | Test No. 2-2-1-5  
        |       | In the table,  
        |       | Test procedure:  
        |       | carrier number  
        |       | L → M  
        |       | Test No. 2-2-2-11 ~ 2-2-2-24 are added. |
| 2.3-16 | 89   | Test No. 2-2-1-5  
        |       | In the table,  
        |       | Test procedure:  
        |       | carrier number  
        |       | L → M  
        |       | Test No. 2-2-2-11 ~ 2-2-2-24 are added. |
| 2.3-17 | 91   | List of test items  
        |       | 3-2-2 64k bit/s UDI outgoing call/communication/disconnection by PS (Note 2)  
        |       | 3-2-3 64k bit/s UDI incoming call/communication/disconnection by the test system (Note 2)  
        |       | 3-4-2 64k bit/s UDI Handover (Note 2)  
        |       | Note 2: If PS is able to achieve a 64k bit/s communication with using 2 TCH simultaneously, these tests are required. |
| 2.3-18 | 93   | Test No. 3-2-2 is added. |
| 2.3-19 | 94   | Test No. 3-3-2 is added. |
| 2.3-20 | 95   | Test No. 3-4-2 is added. |
In relation to subscriber data write-in, the tests specified in the Personal Handy Phone System ARIB Standard Version 2 (RCR STD-28) Annex 2 "Standard Pertaining to Subscriber Data Write-in of Personal Handy Phone System (Public)" shall be conducted.

### INTRODUCTION

The Personal Handy Phone System ARIB Standard Version 2 (RCR STD-28).

About description methods in this appendix

3. The "main text" used in this appendix refers the chapters from 1 to 3 and the annex 1 and annex 3 of "PERSONAL HANDY PHONE SYSTEM PEN TEST ITEMS AND CONDITIONS FOR PUBLIC PERSONAL STATION COMPATIBILITY CONFIRMATION ARIB TECHNICAL REPORT Version 2 (RCR TR-23)."

### Chapter 1 General Facts

1.1 Overview

the Personal Handy Phone System ARIB Standard Version 2 (RCR STD-28).

### Chapter 2 Connection simulator tests

2.1 Purpose

the Personal Handy Phone System ARIB Standard Version 2 (RCR STD-28).

2.3.1.2 Contents of tests for the communication control methods

In the 3rd line,

The handover test items (test no. from 2-2-2-6 to 2-2-2-10 and from 2-2-2-17 to 2-2-2-24) are out of object, because this function is optional in the WLL system.

### Chapter 3 Compatibility Confirmation Tests

3.4.1 List of test items

In the 3rd line,

"Handover operation tests" (Test no. 3-4) and "Handover" (Test no. 3-4-1) and "64k bit/s UDI handover" (Test no. 3-4-2) are deleted.

### Annex 1 Correspondence between specified items of the public standard in the Personal Handy Phone System ARIB Standard and the test items of connection simulator tests

In the 1st line,

the Personal Handy Phone System ARIB Standard Version 2 (RCR STD-28).

1.4 2-2-2-13, 2-2-2-21 are added.

1.6 2-2-4-4 is added.

2.3 2-1-8, 2-2-5-2 are added.

2.4 2-1-7, 2-1-9 are added.

2.5 2-2-2-1 ~ 2-2-2-24

2.1 2-2-2-11, 2-2-2-12, 2-2-2-17, 2-2-2-18 are added.

2.5.3 2-2-2-15, 2-2-2-16, 2-2-2-22, 2-2-2-23 are added.
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<td>AN1-3</td>
<td>105</td>
<td>Table 1.2 (1/3) Relationship between specified items of the public standard in RCR STD-28 and the test items of connection simulator tests. Item no. 2-1-6 ~ 2-1-9 are added.</td>
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<td>AN1-4</td>
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<td>~107 Table 1.2 (2/3) Relationship between specified items of the public standard in RCR STD-28 and the test items of connection simulator tests. Item no. 2-2-2-11 ~ 2-2-2-21 are added.</td>
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<td>AN1-5</td>
<td>107</td>
<td>~108 Table 1.2 (3/3) Relationship between specified items of the public standard in RCR STD-28 and the test items of connection simulator tests. Item no. 2-2-2-22 ~ 2-2-2-24, 2-2-4-4 ~ 2-2-4-6, 2-2-5-2 are added.</td>
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<td>AN3-1</td>
<td>111~114</td>
<td>Annex 3: List of test items using the connection simulator (2) Test items for communication control methods Test no. 2-1-6 ~ 2-1-9 are added. Test no. 2-2-2-11 ~ 2-2-2-24 are added. Test no. 2-2-4-4 ~ 2-2-4-6 are added. Test no. 2-2-5-2 is added. In the table, &quot;M/O&quot; column is added. In lower part of the table, M: Mandatory O: Option (Select according to PS function) are added.</td>
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<td>AN3-2</td>
<td>114</td>
<td>(2) Test items for communication control methods In lower part of the table, the following descriptions are added. *1: If PS is able to achieve a 64k bit/s communication with using 2 TCH simultaneously, these tests are required. *2: If PS does is not tested by the test items marked *1, this test is required.</td>
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"____" Added; "____" Deleted

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<td>Appendix 3</td>
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<td>(1) Parameters which are pre-registered in the PS prior to test</td>
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<td>Country code: same value of pattern A country code in 2.3.2.2 (3)</td>
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<tr>
<td>B</td>
<td>*</td>
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*: The value for Country code can be freely decided by the PS manufacturer.

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PERSONAL HANDY PHONE SYSTEM
TEST ITEMS AND CONDITIONS FOR PUBLIC PERSONAL STATION
COMPATIBILITY CONFIRMATION

ARIB TECHNICAL REPORT
RCR TR–23 VERSION 3.2

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