PERSONAL HANDY PHONE SYSTEM

TEST ITEMS AND CONDITIONS FOR PRIVATE PERSONAL STATION COMPATIBILITY CONFIRMATION

ARIB TECHNICAL REPORT

VERSION 2.2

ARIB TR－T2

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Association of Radio Industries and Businesses (ARIB)

General notes for the ARIB technical report in English version

The original "Personal Handy Phone system Test Items and Conditions for Private Personal Station Compatibility Confirmation ARIB technical report Version 2.2 (ARIB TR-T2)" 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 Private 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 private personal stations with the private cell stations of individual radio equipment manufacturers. In order to put this technical report into practical use, it is necessary for radio equipment manufacturers and testing organizations dealing with the “Personal Handyphone System (for private use)” 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.

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Chapter 1 General Facts

1.1 Overview

Tests related to compatibility confirmation on “private personal stations 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 private standards 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 the 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 tests are conducted within the scope of the general testing environment, and the settings for the test environment or assignments of functions to the personal stations 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 tests, and (2) the compatibility confirmation tests. 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 the certification of conformity with the technical standards are conducted.

Chapter 2 Connection simulator Tests

2.1 Purpose

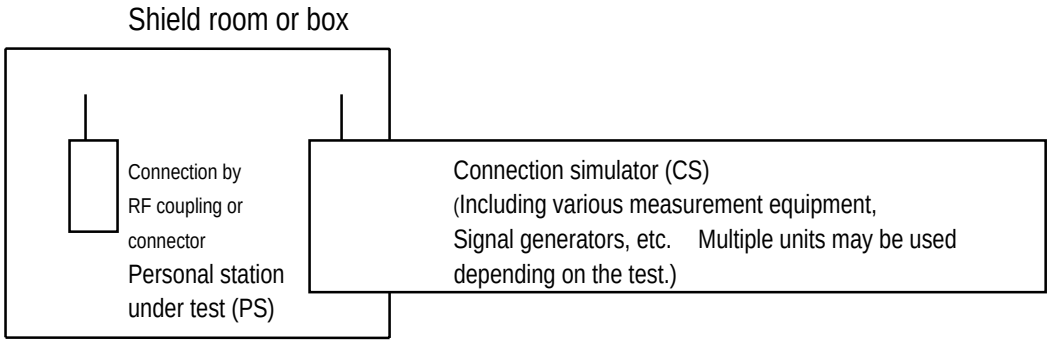
The connection simulator tests are conducted using a connection simulator to check that personal stations produced by individual personal station manufacturers satisfy the private standards in the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28).

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 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).



The radiowave reception environment between the PS and CS must be extremely good

Basic functions for CS
- RF TX/RX characteristics functions
- LCCH transmission
- Transmission power control
- Location registration acknowledge
- Outgoing call, communication, disconnection from PS
- Incoming call, communication, disconnection to PS
- Channel switching during communication, handover

- Definition and transmission indication for LCCH
- Definition of various control sequences
- Control result output
- Connection with other measuring instruments

Fig. 2.1 System configuration for the connection simulator test

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.

Test no.	Test item
1-1	Transmission characteristics
1-1-1	Transmission power
1-1-2	Transient response characteristics of burst transmission
1-1-3	Frequency stability
1-1-4	Modulation accuracy
1-1-5	Transmission rate accuracy
1-1-6	Physical slot transmission condition
1-1-7	Transmission timing
1-1-8	Transmission jitter
1-2	Reception characteristics
1-2-1	Sensitivity
1-2-2	Receive signal strength indicator accuracy

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.

Test no.	Test item
2-1	Basic operation tests
2-1-1	Location registration — Location registration on turning the power for the PS ON
2-1-2	En-bloc sending / Overlap sending — PS originates a call and switches to the communication state (Note 2)
2-1-3	Disconnection (PS) — A call disconnected by the onhook operation for the PS during communication.
2-1-4	Incoming call Paging (BCD 13 digits or less) Paging (BCD 12 digits or less) Zone paging (Note 2) — After a call is received by the PS, PS is switched to the communication state by the offhook operation.
2-1-5	Disconnection (CS) — PS receives "disconnect" message from the CS side during communication and disconnects the call.

2-1-6 64k bit/s UDI outgoing call
- PS originates a 64k bit/s UDI call and switch to the communication state (Note 4)

2-1-7 64k bit/s UDI disconnection (PS)
- A call disconnected by PS during a 64k bit/s UDI communication (Note 4)

2-1-8 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)

2-1-9 64k bit/s UDI disconnection (CS)
- PS receives “Disconnect” message from CS side during a 64k bit/s UDI communication and disconnects the call (Note 4)

2-1-10 64k bit/s UDI outgoing call
- PS originates a 64k bit/s UDI call and switch to the communication state (Note 6,7)

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 6,7)

2-1-12 Direct communication between personal stations Outgoing call

2-1-13 Direct communication between personal stations Disconnection on outgoing call side

2-1-14 Direct communication between personal stations Incoming call

2-1-15 Direct communication between personal stations Disconnection on simulator side

2-1-16 Direct communication between personal stations Transmission stop

2-1-17 Direct communication between personal stations 64k bit/s UDI outgoing call (continuous slots)

2-1-18 Direct communication between personal stations 64k bit/s UDI outgoing call (a pair of slots that are placed one slot away)

2-1-19 Direct communication between personal stations 64k bit/s UDI call disconnection (at a caller PS)

2-1-20 Direct communication between personal stations 64k bit/s UDI incoming call (continuous slots)

2-1-21 Direct communication between personal stations 64k bit/s UDI incoming call (a pair of slots that are placed one slot away)

2-1-22 Direct communication between personal stations 64k bit/s UDI call disconnection (at simulator PS)

2-1-23 Direct communication between personal stations in a specific group Forwarding group identification code for direct communication between personal stations

2-1-24 Direct communication between personal stations in a specific group Receiving group identification code for direct communication between personal stations

2-1-25 Direct communication between personal stations in a specific group Outgoing call

2-1-26 Direct communication between personal stations in a specific group Incoming call

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) (Note 2)
Fixed paging area by system information broadcasting
PS designating type paging area
Fixed paging area by additional ID

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 systems to which the PS has not been registered — location registration not performed because of no coincidence with the system identification code (Note 1)

2-2-1-9 Location registration to systems to which 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 2 LCCH (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 communication physical slot within carrier within CS

2-2-2-2 Channel switching during communication with CS indication : the communication physical slot between carrier within CS

2-2-2-3 Channel switching during communication with PS request : the communication physical slot within carrier within CS

2-2-2-4 Channel switching during communication with PS request : the communication physical slot between carrier within CS

2-2-2-5 Channel switching during communication with CS indication : the communication physical slot between carrier within CS (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 4)

2-2-2-12 64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (Note 4)

2-2-2-13 64k bit/s UDI channel switching during communication with PS request : the same CS, 1st TCH (Note 4)

2-2-2-14 64k bit/s UDI channel switching during communication with PS request : the same CS, 2nd TCH (Note 4)

2-2-2-15 64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH (switching back) (Note 4)

2-2-2-16 64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (switching back) (Note 4)

2-2-2-17 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH (Note 4)

2-2-2-18 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH (Note 4)

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 4)
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 4)
2-2-2-21 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area) (Note 4)
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 4)
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 4, 8)
2-2-2-24 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area) (Note 4)
2-2-2-25 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH (Note 6,7)
2-2-2-26 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH (Note 6,7)
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 6,7)
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 6,7)
2-2-2-29 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area) (Note 6,7)
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 6,7)
2-2-2-31 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area) (Note 6,7)

2-2-3 Restriction operation tests
2-2-3-1 Operation by restriction group assigned :
Restriction group applicable : No access cycle restriction (Note 3)
2-2-3-2 Operation by restriction group assigned :
Restriction group non-applicable : No access cycle restriction (Note 3)
2-2-3-3 Operation by restriction group assigned :
Restriction group applicable : under access cycle restriction (Note 3)
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). (Note 3)
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). (Note 3)
2-2-3-6 Operation by CS information : CS unusable (Note 1). (Note 3)

2-2-4 Semi-normal outgoing call operation tests
2-2-4-1 Disconnection by called party busy (on theCS 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 4,8)

2-2-4-6 Unavailable 2nd TCH assignment at 64k bit/s communication (Note 4)

2-2-4-7 Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up (Note 6,7)

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 6)

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 4,8)

2-2-4-10 Direct communication between personal stations in a specific group Semi-normal outgoing call No available slot

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 In zone paging, PS stops its call terminating operation when one of the other PSs has responded to the call. (Note 2)

2-2-5-3 64k bit/s UDI incoming call for a PS which does not support 64k bit/s communication (Note 5)

2-2-5-4 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 6)

2-2-5-5 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 4,8)

2-2-5-6 Direct communication between personal stations in a specific group Unmatched password number in receiving group identification code

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 6)

2-2-7-2 64k bit/s UDI 2nd TCH disconnection with CS indication (Note 6)

2-2-7-3 64k bit/s UDI additional channel synchronization establishing with PS judgement (Note 6)

2-2-7-4 64k bit/s UDI 2nd TCH disconnection with PS judgement (Note 6)

2-2-7-5 64k bit/s UDI additional channel synchronization establishment failure in PS judgement process (Note 6)

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 : These items should be selected depending on the kinds of functions each PS has.

Note 3 : Restriction operation tests are optional.
Note 4 : If PS is able to achieve a 64k bit/s communication with using 2 TCH simultaneously, these tests are required.
Note 5 : If PS does is not tested by the test items marked Note 4, this test is required.
Note 6 : If PS is able to achieve a 64k bit/s UDI communication in the Slot changeable mode, these tests are required.
Note 7 : In these tests, it is confirmed that the 64k bit/s UDI communication is achieved by using a TCH.
Note 8 : In these tests, PS is set to operate the Two slot fixed type 64k bit/s UDI.
Note 9 : If PS is able to achieve a 64k bit/s direct communication between personal stations with using 2 TCH simultaneously, these tests are required.
Note 10 : If PS is able to achieve a direct communication between personal stations in a specific group, these tests are required.

2.3.1.3 Test items related to the network protection and effective use of frequency

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

Test no.	Test item
3-1	Functions to prevent updating PS specific information
3-2	Restriction for autonomous repsonse detection (Note)
3-3	Restriction for automatic recalling (Note)
3-4	Transmission power other than for communication (Note)

Note : These items should be selected depending on the kinds of functions each PS has.

2.3.2 Basic 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
System identification code : 1
PS number : 9876
Control carrier number : 12, 18
Country code : same value of pattern A country code in 2.3.2.2 (3)
Direct communication between personal stations
PS paging number : 1 (PS paging number of simulator : "2")

(2) Common parameters for the entire test items

PS number	:	9876	
Peer party number	:	4321	
Control carrier number	:	12, 18	
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) : Speech and 3.1kHz audio or Unrestricted digital information
Bearer capability (uplink SETUP message) : Speech 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

System identification code	:	either 1 or 2
PS-ID	:	either 1 or 2
Paging area number(Note)	:	any of 1, 2 or 3
Additional ID	:	any of 1, 2 or 3
Control slot number	:	any of 1, 2 or 3
Communication carrier number	:	any of 1, 15 or 37
Communication slot number	:	any of 2, 3 or 4
User scrambling key	:	Must accord with the user scrambling key set value from PS
BCCH	:	Radio channel information broadcasting, system

information broadcasting, 2nd system information broadcasting

Note : In conducting tests via the PS-designating type area paging method, modifying CS-ID values will perform the operations equivalent to those achieved by modifying area paging numbers.

2.3.2.2 LCCH pattern

(1) Radio channel information broadcasting

Radio channel information broadcasting signals can be determined freely by personal station manufacturers. The following chart shows representative examples, and either pattern A or B can be used for the tests.

Pattern no.	n	n_{GROUP}	n_P	n_{SG}	n_{BS}	n_{PCH}	n_{SUB}	$n1_{offset}$	LCCH structure	Uplink LCCH timing
A	30	2	5	1	1	1	4	*	2LCCH independent	Every 10ms after 2.5ms interval
B	48	1	12	2	2	2	3	*	2LCCH independent	Every 10ms after 2.5ms interval

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

(2) System information broadcasting

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

Pattern no.	RT/MM function REQ	Relevant CS Available/not available	Restriction	Restriction group designation	Access cycle interval
A	Omittable	Available	None	None	No restriction
B	Mandatory	Available	None	None	No restriction
C	Omittable	Not available	None	None	No restriction
D	Omittable	Available	Set	Origination restriction for group 1	No restriction
E	Omittable	Available	Set	Location registration /origination restriction for group 1	LCCH superframe cycle x 32
F	Omittable	Available	Set	Location registration/origination restriction for other groups than 1	No restriction
G	Omittable	Available	Set	Location registration restriction for group 1	No restriction

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

(3) 2nd System information broadcasting

Pattern no.	Country code	System type	RT / MM protocol version
A	*	2	version 3
B	*	2	version 3

* : The value for Country code can be freely decided by the PS manufacturer.
However, Pattern A and B should have different country codes.

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 one or more 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.

Test no.	Test item	Specifications	Measurement carrier
1-1	Transmission characteristics		
1-1-1	Transmission power	10mW or less Deviation: +20%/-50% of the rated value	1
			15
			37
1-1-2	Transient response characteristics of burst transmission	13μs or less, and must meet the template specifications for instantaneous power.	15
1-1-3	Frequency stability	Absolute accuracy $\pm 3 \times 10^{-6}$ or less	15
1-1-4	Modulation accuracy	Error 12.5% or less	15
1-1-5	Transmission rate accuracy	Absolute accuracy $\pm 5 \times 10^{-6}$ or less	15
1-1-6	Physical slot transmission condition	Can be used with 2nd level (44dBμV) or lower	15
1-1-7	Transmission timing	±1 symbol or less	15
1-1-8	Transmission jitter	At detection of 16 bit UW, 1/8 symbol or less	15
1-2	Reception characteristics		
1-2-1	Sensitivity	BER must be 1×10^{-2} or less when RX level is 16dBμV.	15
1-2-2	Receive signal strength indicator accuracy	Absolute accuracy ±6dB (measured at 3 points: 16dBμV, 40dBμV and 60dBμV)	15

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.

Reception sensitivity : Measuring BER at 16dBμV

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

Test no.	**2-1-1**	**Item**	**Basic operation : Location registration**
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: • System identification 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 : 15 • 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 systems. • The uplink LCCH transmission timing must be the uplink LCCH timing at a 10ms 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.			

Test no.	2-1-2	Item	Basic operation : Outgoing call

Overview:

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

Test conditions:

- System identification 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 : 37 (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:

- Select between en-bloc and overlap sendings depending on the functions the relevalnt PS has.
- After dialing on the PS and originating a call, 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:

- System identification 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 : 37
- 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:

- System identification 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 : 1 (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:

- Select among Paging (BCD 13 digits or less), Paging (BCD 12 digits or less) and zone paging, depending on the functions the relevant PS has.
- 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.

Test no.	2-1-5	Item	Basic operation : Disconnection (at CS side)

Overview:

- Check that the call ends normally using the onhook operation via the CS while the PS is in the communication state.

Test conditions:

- System identification 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 : 1
- Communication slot number : 4

Test procedure :

1. Originate a call on the PS (as outlined in test 2-1-4) 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 on both the simulator handset and the PS.
4. Check that the carrier is disconnected for the PS.
5. Check that the call ended at the PS.
6. Check the disconnection sequence by the CS on the simulator.

Check items:

- Check that communication for the PS ends 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.	2-1-6	Item	Basic operation : 64k bit/s UDI outgoing call

Overview:

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

Test conditions:

- System identification 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 37
  : 2nd TCH 1 (or 37, belongs to PS availability)
- Communication slot number : 1st TCH 2
  : 2nd TCH 3

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 double TCH can be set up normally between the simulator and the PS.
4. Check the origination sequence using the simulator.

Check items:

- Select between en-bloc and overlap sendings depending on the functions the relevalnt PS has.
- 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.

Test no.	2-1-7	Item	Basic operation : 64k bit/s UDI call disconnection (at PS side)

Overview:

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

Test conditions:

- System identification 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 37
  : 2nd TCH 1 (or 37, belongs to PS availability)
- Communication slot number : 1st TCH 2
  : 2nd TCH 3

Test procedure :

1. Originate a 64k bit/s 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 (or other terminal equipment connected to 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 PS (or other terminal equipment connected to 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.

Test no.	2-1-8	Item	Basic operation : 64k bit/s UDI incoming call

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:

- System identification 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 1
  : 2nd TCH 37 (or 1, 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:

- Select among Paging (BCD 13 digits or less), Paging (BCD 12 digits or less) and zone paging, depending on the functions the relevant PS has.
- 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:

- System identification 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 1
  : 2nd TCH 37 (or 1, 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.

Test no.	2-1-10	Item	Basic operation : 64k bit/s UDI outgoing call

Overview:

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

Test conditions:

- System identification 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 37
- 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:

- Select between en-bloc and overlap sendings depending on the functions the relevalnt PS has.
- 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.

Test no.	2-1-11	Item	Basic operation : 64k bit/s UDI incoming call

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 using a TCH can be connected using the communication start operation for the PS.

Test conditions:

- System identification 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 1
- Communication slot number : 1st TCH 4

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 a TCH is connected and the slot changeable type 64k bit/s UDI communication are enabled between the simulator and the PS.
5. Check that the 64k bit/s UDI call using a TCH can be disconnected normally in process outlined in the test 2-1-9.
6. Check the termination and disconnection sequence on the simulator.

Check items:

- Select among Paging (BCD 13 digits or less), Paging (BCD 12 digits or less) and zone paging, depending on the functions the relevant PS has.
- 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.	2-1-12	Item	Basic operation : Direct communication between personal stations Outgoing call

Overview:

- Check that the communication state is established by outgoing call operation of the PS.

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: one of 1 to 10
- Communication slot number: one of 1 to 4

Test procedure :

1. Make an outgoing call operation on the PS.
2. Check that a communication between the PS of the simulator and the PS of the outgoing call side is possible.
   During this operation, alternately check the communication state and the sending/receiving volume.
3. Check the outgoing call sequence on the PS of the simulator.

Check items:

- The communication state must be established and a communication must be possible by outgoing call operation after dial operation of the PS.
- The communication (standard scramble) state and sending/receiving volume must be appropriate.

Test no.	2-1-13	Item	Basic operation : Direct communication between personal stations Disconnection on outgoing call side

Overview:

- Check that the communication ends normally by termination of communication operation of the PS while communication is in progress.

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: one of 1 to 10
- Communication slot number: one of 1 to 4

Test procedure :

1. Set to the communication state by the outgoing call (test number 2-1-10).
2. Carry out termination of communication operation on the PS.
3. Check communication disconnection between both the PS of the simulator and PS of the outgoing call side.
4. Check that the carrier is disconnected on the PS.
5. Check that the PS is in the termination of call state.

Check items:

- Check that communication has ended and that the communication is disconnected by disconnection operation on the outgoing call side PS.
- Carrier transmission while communication is in progress must have stopped on the PS.
- The PS must be in the termination of call state.

Test no.	2-1-14	Item	Basic operation : Direct communication between personal stations Incoming call

Overview:

- Cause an incoming call to the own PS, and check that the PS starts communication from an arbitrary incoming call state and that communication is possible.
  (An "arbitrary incoming call state" includes automatic response incoming calls.)

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: one of 1 to 10
- Communication slot number: one of 1 to 4

Test procedure :

1. Start an incoming call on the simulator.
2. Check the sounding of the incoming call tone on the PS (at regular incoming call).
   This is not necessary when the PS is set to automatic response.
3. Carry out communication start operation on the PS (at regular incoming call).
   This is not necessary when the PS is set to automatic response.
4. Check that communication is possible between both the PS of the simulator and PS of the incoming call side.
5. During this operation, alternately check the communication state and the sending/receiving volume.
6. Check the incoming call sequence on the simulator.

Check items:

- Incoming calls must be possible by bit coding by which the PS paging number is set.
- The PS must be in an incoming call tone sounding state by the incoming call (at regular incoming call). This is not necessary when the PS is set to automatic response.
- The communication state must be established and communication must be possible by the communication state operation of the PS(at regular incoming call). This is not necessary when the PS is set to automatic response.
- The communication state and communication volume must be appropriate.

Test no.	2-1-15	Item	Basic operation : Direct communication between personal stations Disconnection on simulator side

Overview:

- Check that communication ends when communication disconnection operation is carried out by the PS of the simulator when the PS is in a communication in progress state.

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: one of 1 to 10
- Communication slot number: one of 1 to 4

Test procedure :

1. The communication in progress state (test number 2-1-12) must be established.
2. Start disconnection by the PS of the simulator.
3. Check that communication is possible between both the PS of the simulator and PS of the communication party side.
4. Check that the carrier is disconnected on the PS.
5. Check that the PS is in the termination of call state.
6. Check the disconnection sequence on the PS of the simulator.

Check items:

- The PS must terminate communication, and the communication must be disconnected.
- The PS must stop transmission of the communication carrier.
- The PS must be in the termination of call state.

Test no.	2-1-16	Item	Basic operation : Direct communication between personal stations Transmission stop

Overview:

- Transmission must stop unconditionally when transmission continues for three minutes with the PS in a transmission state. Also, check that transmission is not resumed for two seconds after transmission is stopped.

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: one of 1 to 10
- Communication slot number: one of 1 to 4

Test procedure :

1. Set to the communication state by the outgoing call (test number 2-1-10).
2. Check that a communication is possible between the PS of the simulator and the PS of the outgoing call side.
3. Measure the time up to when the PS stops transmission.
4. Check that the carrier is disconnected on the PS.
5. Check that the PS is in the termination of call state.
6. Check the disconnection sequence on the PS of the simulator.
7. Check that transmission is not carried out for two seconds after transmission is stopped.

Check items:

- Measure the time from start of the outgoing call up to when transmission is stopped, and check that transmission stops when transmission has continued for three minutes.
- The PS must stop transmission of the communication carrier.
- The PS must be in the termination of call state.
- Check that transmission is not carried out for two seconds.

Test no.	2-1-17	Item	Basic operation : Direct communication between personal stations 64k bit/s UDI outgoing call (continuous slots)

Overview:

- Check if 64k bit/s communication state can be established by outgoing call operation of the target PS.

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: 1st TCH Any number between 1 to 10
  : 2nd TCH Same frequency with 1st TCH
- Communication slot number: 1st TCH Any number between 1 to 4
  : 2nd TCH Continuous slot of 1st TCH

Test procedure :

1. Initiate a 64k bit/s UDI call using the target PS.
2. Check if the 64k bit/s UDI call using double TCH can be set up normally between the simulator PS and the target PS.
3. Check the initiating sequence using the simulator PS.

Check items:

- The 64k bit/s UDI call can be set up correctly and communication can be established correctly by dialing on the target PS.
- The communication state (standard scramble) must be appropriate.

Test no.	2-1-18	Item	Basic operation : Direct communication between personal stations 64k bit/s UDI outgoing call (a pair of slots that are placed one slot away)

Overview:

- Check if 64k bit/s communication state can be established by outgoing call operation of the target PS.

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: 1st TCH Any number between 1 to 10
  : 2nd TCH Any number between 1 to 10 except the number of 1st TCH
- Communication slot number: 1st TCH Any number between 1 to 4
  : 2nd TCH One slots away from the slot of 1st TCH (1 and 3 or 2 and 4)

Test procedure :

1. Initiate a 64k bit/s UDI call using the target PS.
2. Check if the 64k bit/s UDI call using double TCH can be set up normally between the simulator PS and the target PS.
3. Check the initiating sequence using the simulator PS.

Check items:

- The 64k bit/s UDI call can be set up correctly and communication can be established correctly by dialing on the target PS.
- The communication state (standard scramble) must be appropriate.

Test no.	2-1-19	Item	Basic operation : Direct communication between personal stations 64k bit/s UDI call disconnection (at a caller PS)

Overview:

- Check if the 64k bit/s call can be ended by the PS's call ending operation.

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: 1st TCH Any number between 1 to 10
  : 2nd TCH Same frequency with 1st TCH
- Communication slot number: 1st TCH Any number between 1 to 4
  : 2nd TCH Continuous slot of 1st TCH

Test procedure :

1. Initiate a 64k bit/s call (as outlined in test 2-1-17) and set the target PS to communication state.
2. End the call using the target PS.
3. Check if the call has been terminated for both the simulator PS and the target PS.
4. Check if the carriers of both 1st TCH and 2nd TCH have been disconnected at the target PS.
5. Check if the call has been ended at the target PS.
6. Check if the target PS switches to call ended state.

Check items:

- Check if the call can be ended by the target PS's call ending operation and if the call has been disconnected.
- Check if the target PS can stop the carrier transmissions of both 1st TCH and 2nd TCH for communication.
- Check if the target PS switches to call ended state.

Test no.	2-1-20	Item	Basic operation : Direct communication between personal stations 64k bit/s UDI incoming call (continuous slots)

Overview:

- Check if a 64k bit/s communication state can be established by incoming call. The target PS should start the communication from arbitrary state. (“Arbitrary state” includes automatic response receiving.)

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: 1st TCH Any number between 1 to 10
  : 2nd TCH Same frequency with 1st TCH
- Communication slot number: 1st TCH Any number between 1 to 4
  : 2nd TCH Continuous slot of 1st TCH

Test procedure :

1. Initiate a 64k bit/s UDI call using the simulator.
2. Check if the target PS (or connected device) starts doing actions caused by receiving like ringing or displaying a message (normal receiving state). This checking is not necessary when the PS is in automatic response state.
3. Operate the target PS (or connected device) to start a communication. (normal receiving state) This is not necessary when the PS is in automatic response state.
4. Check if a 64k bit/s UDI call using double TCH can be set up normally between the simulator PS and the target PS.
5. Check the incoming call sequence of the simulator PS.

Check items:

- Incoming call can be set up using the prescribed bit coding of the target PS paging number.
- Incoming call causes target PS’s to ring or display a message (normal receiving state). This is not necessary when the PS is in automatic response state.
- The communication state must be established and communication must be possible through the communication state operation of the target PS (normal receiving state). This is not necessary when the PS is in automatic response state.
- The 64k bit/s UDI call can be set up and can establish communication correctly.
- The communication state (standard scramble) must be appropriate.

Test no.	2-1-21	Item	Basic operation : Direct communication between personal stations 64k bit/s UDI incoming call (a pair of slots that are placed one slot away)

Overview:

- Check if 64k bit/s communication state can be established by incoming call. The target PS should start the communication from arbitrary state. (“Arbitrary state” includes automatic response receiving.)

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: 1st TCH Any number between 1 to 10
  : 2nd TCH Any number between 1 to 10
  except the number of 1st TCH
- Communication slot number: 1st TCH Any number between 1 to 4
  : 2nd TCH One slots away from the slot of 1st TCH
  (1 and 3 or 2 and 4)

Test procedure :

1. Initiate a 64k bit/s UDI call using the simulator.
2. Check if the target PS (or connected device) starts doing actions like ringing or displaying a message caused by receiving (normal receiving state). This is not necessary when the PS is in automatic response state.
3. Operate the target PS (or connected device) to start a communication. (normal receiving state) This is not necessary when the PS is in automatic response state.
4. Check that the 64k bit/s UDI call using double TCH can be set up normally between the simulator PS and the target PS.
5. Check the incoming call sequence of the simulator PS.

Check items:

- Incoming call can be set up by the prescribed bit coding of the target PS paging number.
- Incoming call causes the target PS to ring or display a message (normal receiving state). This is not necessary when the PS is in automatic response state.
- The communication state must be established and communication must be possible through the communication state operation of the target PS (normal receiving state). This is not necessary when the PS is in automatic response state.
- The 64k bit/s UDI call can be set up and can establish communication correctly.
- The communication state (standard scramble) must be appropriate.

Test no.	2-1-22	Item	Basic operation : Direct communication between personal stations 64k bit/s UDI call disconnection (at simulator PS)

Overview:

- Check if the 64k bit/s call can be ended by simulator PS's call ending operation.

Test conditions:

- System identification code: 1
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: 1st TCH Any number between 1 to 10
  : 2nd TCH Same frequency with 1st TCH
- Communication slot number: 1st TCH Any number between 1 to 4
  : 2nd TCH Continuous slot of 1st TCH

Test procedure :

1. Initiate a 64k bit/s call (as outlined in target 2-1-18) and set the target PS to the communication state.
2. End the call through the simulator PS.
3. Check if the call has been ended for both the simulator PS and the target PS.
4. Check if the carriers of both 1st and 2nd TCH are disconnected at the target PS.
5. Check if the call has been ended at the target PS.
6. Check the disconnection sequence of the simulator PS.

Check items:

- Check if the call is ended by the simulator PS's call ending operation and the call is disconnected.
- Check if target PS stops carrier transmission of both 1st and 2nd TCH for communication.
- Check if target PS switches to the call ended state.

Test no.	2-1-23	Item	Basic operation : Direct communication between personal stations in a specific group ; Forwarding group identification code for direct communication between personal stations

Overview:

- Check if the target PS can transfer group identification code correctly by forwarding group identification code for direct communication between personal stations.

Test conditions:

- Group identification code : Add 1 bit (value is 1) to PS-ID's MSB side.
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: Either 4, 7 or 9
- Communication slot number: Any number between 1 to 4
- Password Number : 3456 (from 1st digit)

Test procedure :

1. Set the simulator PS to the receiving group identification code state.
2. Let the target PS transfer group identification code.
3. Check "transferred" message on the simulator PS.
4. Check if out going and incoming calls are performed correctly using Tests 2-1-23 and 2-1-24.

Check items:

- Check if the target PS can transfer group identification code correctly by forwarding group identification code for direct communication between personal stations.

Test no.	2-1-24	Item	Basic operation : Direct communication between personal stations in a specific group ; Receiving group identification code for direct communication between personal stations

Overview:

- Check if the target PS can transfer group identification code correctly using group identification code receiving.

Test conditions:

- Group identification code : Add 1 bit (value is 1) to any 28 bit data except PS-ID.
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: Either 4, 7 or 9
- Communication slot number: Any number between 1 to 4
- Password Number : 4567 (from 1st digit)

Test procedure :

1. Set the target PS to the receiving state by operation of receiving group identification code.
2. Let the simulator PS transfer group identification code.
3. Check if the transfer of group identification code ends correctly on the target PS.
4. Check if out going and incoming calls are performed correctly using Tests 2-1-23 and 2-1-24.

Check items:

- Check if the target PS can transfer group identification code correctly using group identification code receiving.

Test no.	2-1-25	Item	Basic operation : Direct communication between personal stations in a specific group ; Outgoing call

Overview:

- Initiate a call on the target PS and check if the PS is set for the communication state.

Test conditions:

- Group identification code : Same with Test 2-1-21 or 2-1-22
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: Either 4, 7 or 9
- Communication slot number: Any number between 1 to 4

Test procedure :

1. Initiate a call at the target PS.
2. Check if the call can be set up normally between the simulator PS and the target PS. Check if normal communication is possible and the transmission/reception volume level at both sides are appropriate.
3. Check the initiating sequence using the simulator.

Check items:

- After dialing on the target PS and initiating a call, check if the call can be set up and communicate is possible.
- The communication states (standard scrambling) and transmission/reception volume should be appropriate.

Test no.	2-1-26	Item	Basic operation : Direct communication between personal stations in a specific group ; Incoming call

Overview:

- Check if communication state can be established by incoming call. The target PS should start the communication from arbitrary state. (“Arbitrary state” includes automatic response receiving.)

Test conditions:

- Group identification code : Same with Test 2-1-21 or 2-1-22.
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: Either 4, 7 or 9
- Communication slot number : Any number between 1 to 4

Test procedure :

1. Initiate a 64k bit/s UDI call using the simulator PS.
2. Check if the target PS starts ringing or does other actions caused by receiving (normal receiving state). This is not necessary when PS is in automatic response state.
3. Operate the target PS to start a communication (normal receiving state). This is not necessary when the PS is in automatic response state.
4. Check if the call can be set up normally between simulator PS and target PS.
5. Check if normal communication is possible and the transmission/reception volume level at both sides are appropriate.
6. Check the incoming call sequence of the simulator PS.

Check items:

- Incoming call can be set up using the prescribed bit coding of the PS paging number.
- Incoming call causes PS to ring. (normal receiving state) This is not necessary when the PS is in automatic response state.
- The communication state must be established and communication must be possible by the communication state operation of the target PS (normal receiving state). This is not necessary when the PS is in automatic response state.
- The communication state (standard scramble) and the transmission/reception volume level at the both sides must be appropriate.

2.3.3.2.2 Application operation tests

2.3.3.2.2.1 Location registration operation tests

Test no.	**2-2-1-1**	**Item**	**Application operation : Location registration; Location registration while the PS is moving between paging areas**

Overview:

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

Test conditions:

- System identification 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 : 15
- 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:

- Select among three types of location registration methods, depending on the functions the relevant PS has.
- 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:

- System identification 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 : 15
- 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.

Test no.	2-2-1-3	Item	Application operation : Location registration; Processing after location registration fails (location registration reject: retry disable)

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:

- System identification 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 : 15
- 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:

- System identification 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 : 15
- 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:

- System identification 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 : 37 (with interference) → 15 (without interference)
- Communication slot number : 4 (with interference) → 2 (without interference)
- The signal generator in the simulator must be set so as to interfere with carrier number "37".

Test procedure :

1. Perform location registration normally using the PS. (Paging area number :1)
2. Apply 45dBμV signals of carrier number "37" 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 "37" 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 "15" 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.

Test no.	2-2-1-6	Item	Application operation : Location registration; Operation when link channel assignment is rejected when all the slots are used by the CS

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:

- System identification 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., 100sec).

Test no.	2-2-1-7	Item	Application operation : Location registration; Location registration when the PS is moving between CSs in the same paging area (location registration not performed)

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 :

- System identification 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 systems (Because of no coincidence with the system identification code, location registration shall not be performed.)

Overview:

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

Test conditions:

- System identification code : 1 → 2 (System identification 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. (System identification code :1)
2. Set the transmission level for the broadcasting signal for system identification code "1" below the standby zone hold level and for system identification code “2” at or above the standby zone selection level via the simulator (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 system identification code which is not registered for the PS.

Test no.	2-2-1-9	Item	Application operation : Location registration; Location registration to unregistered operators because of no coincidence with the country code

Overview:

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

Test conditions:

- System identification 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 : 15
- 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:

- System identification 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 : 15
- 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.

2.3.3.2.2.2 Channel switching operation tests during communication

Test no.	**2-2-2-1**	**Item**	**Application operation : Channel switching during communication with CS indication (the communication physical slot within carrier within CS)**

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 :

- System identification 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 : 15 → 15 (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 communication physical slot within carrier within CS.
- The PS must switch to the specified channel and resume communication.

Test no.	2-2-2-2	Item	Application operation : Channel switching during communication with CS indication (the communication physical slot between carrier within CS)

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 :

- System identification 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 : 15 → 37 (switching to)
- Communication slot number : 3 → 4 (switching to)

Test procedure :

1. Set the PS to the communication state (as outlined in test 2-2-2-1).
2. Send a TCH switching indication to the PS from the simulator.
3. Check that the PS switches to the specified channel and resumes 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 communication physical slot between carrier within CS.
- The PS must switch to the specified channel and resume communication.

Test no.	2-2-2-3	Item	Application operation : Channel switching during communication with PS request (the communication physical slot within carrier within CS)

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 :

- System identification 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 : 37 → 37 (switching to)
- Communication slot number : 4 → 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 communication physical slot within carrier within CS. The PS must switch to the specified channel and resume communication.

Test no.	2-2-2-4	Item	Application operation : Channel switching during communication with PS request (the communication physical slot between carrier within CS)

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 :

- System identification 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 : 37 → 15 (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 communication physical slot between carrier within CS.

Test no.	2-2-2-5	Item	Application operation : Channel switching during communication with CS indication (the communication physical slot between carrier within CS) (switching back)

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:

- System identification 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 : 15 → 37 (switching to) → 15 (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 switching indication containing the communication physical slot between carrier within CS 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 specifies the home CS in the communication state and receives a TCH switching indication which does not specify the carrier and slot numbers, check that the PS performs the recalling-type handover and resume communication.

Test conditions :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 2 (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 : 15 → 1
- 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.

Test no.	2-2-2-7	Item	Application operation : Channel switching during communication; Handover with CS indication (Recalling-type handover to other CS) (the same paging area)

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 :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 2 (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 : 1 → 15 (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.	2-2-2-8	Item	Application operation : 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 carrier decreases below the recalling-type handover process level, check that the PS hands over to other CS.

Test conditions :

- System identification code : 1
- Paging area number : 1
- Additional ID : 2 (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 : 15 → 15 (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.

Test no.	2-2-2-9	Item	Application operation : Channel switching during communication (Handover with CS indication; Recalling-type handover to other CS) (the same paging area) (switching back)

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 :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1(No. 1), 2 (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 : 15 → 15 (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	Item	Application operation : Channel switching during communication (Handover with PS judgment; Recalling-type handover to other 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 :

- System identification 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 : 15 → 1 (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 communication state and resume communication.

Test conditions :

- System identification 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 15→37 (or 15, belongs to PS availability)
  : 2nd TCH 15
- 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.

Test no.	2-2-2-12	Item	Application operation : 64k bit/s UDI channel switching during communication with CS indication (the same CS/2nd TCH)

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 communication state and resume communication.

Test conditions :

- System identification 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 37 (or 15, belongs to PS availability)
  : 2nd TCH 15→1 (or 15, 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 :

- System identification 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 37 (or 15, belongs to PS availability)→ 15
  : 2nd TCH 1 (or 15, 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 simulator.
3. Send a TCH switching indication using 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 :

- System identification 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 15
  : 2nd TCH 1 (or 15, belongs to PS availability)→ 15
- 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 simulator.
3. Send a TCH switching indication using 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.

Test no.	2-2-2-15	Item	Application operation : 64k bit/s UDI channel switching during communication with CS indication (the same CS/1st TCH) (switching back)

Overview :

- When PS receives a TCH switching indication on 1st TCH in 64k bit/s 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 resume communication.

Test conditions :

- System identification 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 15→37 (switching to)→15 (switching back to)
  : 2nd TCH 15
- 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 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 communication.
- 2nd TCH must not be changed during the channel switching operation of 1st TCH.

Test no.	2-2-2-16	Item	Application operation : 64k bit/s UDI channel switching during communication with CS indication (the same CS/2nd TCH) (switching back)

Overview :

- When PS receives a TCH switching indication on 2nd TCH in 64k bit/s 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 :

- System identification 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 15
  : 2nd TCH 15→15 (switching to)→15 (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 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 communication.
- 1st TCH must not be changed during the channel switching operation of 2nd TCH.

Test no.	2-2-2-17	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 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 communication state, check that the PS performs the recalling-type handover to the home CS and resume communication.

Test conditions :

- System identification 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 15 → 1
  : 2nd TCH 15 → 37 (or 1, 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 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 communication state, check that the PS performs the recalling-type handover to the home CS and resume communication.

Test conditions :

- System identification 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 1 → 15
  : 2nd TCH 37 (or 1, belongs to PS availability) → 15
- 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 PS receives a TCH switching indication on 1st TCH without the CS-ID information element in the 64k bit/s communication state, check that the PS performs the recalling-type handover and resume communication.

Test conditions :

- System identification 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 15 → 1 (switching to)
  : 2nd TCH 15 → 1 (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.

Test no.	2-2-2-20	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 PS receives a TCH switching indication on 2nd TCH without the CS-ID information element in the 64k bit/s communication state, check that the PS performs the recalling-type handover and resume communication.

Test conditions :

- System identification 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 → 15 (switching to)
  : 2nd TCH L → 15 (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 communication state, check that the PS performs the recalling-type handover and resume communication.

Test conditions :

- System identification 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 15 → 15 (switching to)
  : 2nd TCH 15 → 15 (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) signal 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 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.	2-2-2-22	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 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 :

- System identification 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 15 → 15 (switching back to)
  : 2nd TCH 15 → 15 (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.

Test no.	2-2-2-23	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 2nd TCH)

Overview :

- Check that the PS performs handover on reception of a TCH switching indication during 64k bit/s 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 :

- System identification 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 15→15 (switching to)→15 (switching back to)
  : 2nd TCH 15→15 (switching back to)
- Communication slot number : 1st TCH 3→4 (switching to)→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 2-2-2-22).
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.

Test no.	2-2-2-24	Item	Application operation : 64k bit/s UDI channel switching during communication ; Handover with PS judgment (Recalling type handover to other CS/other paging area)

Overview :

- When the reception level for the communication carriers decrease below the recalling-type handover process level during the 64k bit/s 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 :

- System identification 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 1 → 37 (switching to)
  : 2nd TCH 37 → 1 (switching to)
- Communication slot number : 1st TCH 2 → 2
  : 2nd TCH 4 → 4

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.	2-2-2-25	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 :

- System identification code: 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 2 (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 15 → 1
  : 2nd TCH 15 → 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.	2-2-2-26	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 :

- System identification code: 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 2 (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 1→ 15
  : 2nd TCH 37 (or 1, 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.

Test no.	2-2-2-27	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 64k bit/s UDI communication using a TCH.

Test conditions :

- System identification code: 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 2 (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 15 → 1 (switching to)
  : 2nd TCH 15 → 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 :

- System identification code: 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 2 (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 1 → 15 (switching to)
  : 2nd TCH 1 → 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.

Test no.	2-2-2-29	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 64k bit/s UDI communication using a TCH.

Test conditions :

- System identification code: 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 2 (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 1 → 15 (switching to)
  : 2nd TCH 1 → 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. 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 :

- System identification code: 1
- Paging area number : 1
- Additional ID : 1 (No. 1), 2 (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 15 → 15 (switching back to)
  : 2nd TCH 15 → 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.

Test no.	2-2-2-31	Item	Application operation : 64k bit/s UDI channel switching during communication ; Handover with PS judgment (Recalling type handover to other CS/other 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 to other CS of other paging area. After the call ends, check that the PS performs location registration.

Test conditions :

- System identification 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 1 → 37 (switching to)
  : 2nd TCH 37 → 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

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

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 :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- 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 operation to originate a call is performed on the PS. (calling restriction)

Test no.	2-2-3-2	Item	Application operation : Restriction; Operation by restriction group set (Out of restriction group / No access cycle restriction)

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 :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- System information broadcasting : Pattern D ' Pattern F (location registration/ calling restriction other than group 1)
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 15
- 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.

Test no.	2-2-3-3	Item	Application operation : Restriction; Operation by restriction group set (Within restriction group / With access cycle restriction)

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 :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- System information broadcasting : Pattern F → Pattern E → Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 15
- 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 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 :

- System identification code : 1
- Paging area number : 1 → 2
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- 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" at or below the standby zone hold level and the transmission level for the broadcasting signal with paging area number "2" at or 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.

Test no.	2-2-3-5	Item	Application operation : Restriction; Operation when the PS moves from a restriction area to non-restriction area (No access cycle restriction)

Overview :

- 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.

Test conditions :

- System identification code : 1
- Paging area number : 2 → 3
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- System information broadcasting : Pattern G (restriction group 1) → Pattern F (restriction group other than 1)
- 2nd system information broadcasting : Pattern A
- Control slot number : 3 → 1
- Communication carrier number : 15
- 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" at or below the standby zone hold level and the transmission level for the broadcasting signal with paging area number "3" at or 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, and that 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 :

- System identification code : 1
- Paging area number : 3 (without restriction group) → 2 (CS unusable)
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- System information broadcasting : Pattern F (groups other than restriction group 1) → 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" at or below the standby zone hold level and the transmission level for the broadcasting signal with paging area number "2" at or 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

Test no.	2-2-4-1	Item	Application operation : Semi-normal outgoing call operation Disconnection when the called party (on the CS side) is busy

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 :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 15
- 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 information element identifier, “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 end the call by the onhook operation when, in originating a call, it receives a "called party busy" in the disconnection signal from the CS.

Test no.	2-2-4-2	Item	Application operation : Semi-normal outgoing call operation Verification of ID at link channel establishment (Calling station ID code does not match up)

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 :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 15
- Communication slot number : 3
- CS-ID for synchronization burst : System identification 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 a different system identification 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 :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- System information broadcasting : Pattern A
- 2nd system information broadcasting : Pattern A
- Control slot number : 1
- Communication carrier number : 15
- 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 a 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 :

- System identification 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 : 15
- 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 a 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 a uplink synchronization burst after receiving the link channel assignment. When the PS detect 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	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 switches back to the standby state after the specified period of time.

Test conditions :

- System identification 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 15
  : 2nd TCH 15
- 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.

Test no.	2-2-4-6	Item	Application operation : 64k bit/s UDI semi-normal outgoing call operation ; Unavailable 2nd TCH assignment at 64k bit/s UDI communication

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 :

- System identification 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 1
  : 2nd TCH 37
- 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 :

- System identification 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 37 → 37
  : 2nd TCH 37 → Not assignment
- Communication slot number : 1st TCH 2 → 2
  : 2nd TCH 4 → 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.

Test no.	2-2-4-8	Item	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

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 :

- System identification 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 37 → 37
- 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.

Test no.	2-2-4-9	Item	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

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 :

- System identification 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 37 → 37
- 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 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 originating operation on the PS.

Test no.	2-2-4-10	Item	Application operation : Direct communication between personal stations in a specific group ; Semi-normal outgoing call; No available slot.

Overview:

- Check if the target PS does not start outgoing call when there is no available slot in available carrier for direct communication between personal stations.

Test conditions:

- Group identification code: Add 1 bit (value is 1) to PS-ID's MSB side.
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: Either 4,7 or ,9
- Communication slot number: Any number between – 1 and 4
- Set signal generator to interfere carrier 4,7 and 9.
- Set the simulator PS to connect incoming call for all carriers 1 to 10.

Test procedure :

1. Set signal generator to transmit 45dBuV signal on carrier number 4,7 and 9.
2. Set the simulator PS to the receiving-group-identification-code state.
3. Operate the target PS to start outgoing call.
4. Check if the target PS does not start outgoing call.
5. Check that the simulator does not activate incoming call sequence.

Check items:

- Check if the target PS does not send “alerting” nor “1st alerting”.

2.3.3.2.2.5 Semi-normal incoming call tests

Test no.	2-2-5-1	Item	Application operation : Semi-normal incoming call operation Incoming call to PS in the same paging group but different PS number

Overview :

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

Test conditions :

- System identification code : 1
- Paging area number : 1
- Additional ID : 1
- Radio channel information broadcasting : Pattern B
- 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 : any numbers other than 9876

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 perform a call receiving operation on reception of paging signals with PS numbers different from its own.
- The PS must not send a link channel establishment request.

Test no.	2-2-5-2	Item	Application operation : Semi-normal incoming call operation: In zone paging, the PS stops its call terminating operation when one of the other PS's has responded to the call.

Overview :

- Check that, in case of zone paging, the PS stops performing the calll terminating operation, when one of the other PS's responded to the call.

Test conditions :

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

Test procedure :

1. Perform normal location registration normally using the PS. (Paging area number : 1)
2. The simulator performs zone paging to the PS. At this point, check that the PS generates ringing tones.
3. The simulator sends an indication to stop the ringing tones to the PS, which is generating the ringing tones.
4. Check that the PS does not receive a call.
5. Check that the termination sequence is not activated on the simulator.

Check items :

- The PS must not perform a call receiving operation on reception of. signals to stop the ringing tones.
- The PS must not send a link channel establishment request.

Test no.	2-2-5-3	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 a additional channel assign request indicate from CS, check that the PS sends additional channel request indicate reject.

Test conditions :

- System identification 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 1
- 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 a additional channel assign request indicate after receiving the paging response.
4. Check that the PS sends a additional channel assign request indicate reject via a 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 a additional channel assign request indicate from CS.

Test no.	2-2-5-4	Item	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

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 :

- System identification 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 37 $\rightarrow$ 37
- Communication slot number : 1st TCH 2 $\rightarrow$ 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.

Test no.	2-2-5-5	Item	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

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 :

- System identification 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. 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.

Test no.	2-2-5-6	Item	Application operation : Direct communication between personal stations in a specific group; Unmatched password number in receiving group identification code.

Overview:

- Check if the target PS does not memorize the group identification code when it receives unmatched password number in receiving group identification code.

Test conditions:

- Group Identification code for direct communication between personal stations : Add 1 bit (value is 1) to PS-ID's MSB side.
- PS paging number: 1 (outgoing call side: "1", simulator: "2")
- Communication carrier number: Either 4,7 or 9
- Communication slot number: Any number between 1 and 4
- Password number of simulator PS: 4567 (from 1st digit)
- Password number of target PS: Any number except 4567

Test procedure :

1. Set the target PS to the receiving state by operation of receiving group identification code.
2. Let the simulator PS transfer group identification code.
3. Check if the transferr of group identification code does not end correctly on the target PS.

Check items:

- Check if the target PS does not memorize the group identification code by unmatched password number in a "transfer" message.

2.3.3.2.2.6 Transmission stop operation tests

Test no.	2-2-6-1	Item	Application operation : Transmission stop Transmission halts, Radio channel release

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 :

- System identification 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 : 15
- Communication slot number : 4

Test procedure :

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

Check items

- When consecutive slot errors have continued at least 4 sec during communication, the PS must halt transmission regardless of the reception level until the error state is restored to normal status.
- If consecutive slot errors have continued 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

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

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 :

- System identification 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 37→ 37
  : 2nd TCH No assignment
  → 1 (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.

Test no.	2-2-7-2	Item	Application operation : Additional channel establishment and disconnection 64k bit/s UDI 2nd TCH release during communication with CS indication

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 :

- System identification 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 37 → 37
  : 2nd TCH 1 (or 37, 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	Item	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 :

- System identification 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 37 → 37
  : 2nd TCH No assignment
  → 1 (or 37, 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 :

- System identification 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 37 → 37
  : 2nd TCH 1 (or 37, 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 2-2-7-3)
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.

Test no.	2-2-7-5	Item	Application operation : Additional channel establishment and disconnection 64k bit/s UDI failure of additional channel synchronization establishment with PS judgement

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 :

- System identification 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 37 → 37
  : 2nd TCH 37 → 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 3 "Standard Pertaining to Authentication of Personal Handy Phone System (Private)"

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 4 "Standard Pertaining to Subscriber Data Write-in of Personal Handy Phone System(Private)" shall be conducted.

2.3.3.4 Contents of tests for network protection and effective use of frequency

If the personal station has the following functions as part of the “technical conditions required of personal stations as terminal facilities”, tests should be conducted in regard to the relevant functions.

Test no.	**3-1**	**Item**	**Function to prevent updating PS specific information**
Check Items: The device to store PS specific information (i.e., information to identify the particular PS and used in setting channels) in memory should not be easily detached. It should not be easy, moreover, to update the PS specific information. In addition, the part of the PS specific information which is not for direct use by end-users should be hard to get access to or know about.			

Test no.	**3-2**	**Item**	**Restriction for autonomous response detection**
Check Items: This item is applied only to the kind of PS that has the function to automatically confirm that there was a response from the called party terminal to the call originated by the PS. If such PS cannot verify there has been any response from the called party terminal, it must first transmit a signal to specify the terminal facility of the called party, and then send a signal to disconnect the channel within one minute to stop transmission.			

Test no.	3-3	Item	Restriction for automatic recalling

Check Items:

Automatic recalling (i.e., automatically originating calls repeatedly to the party who does not respond) should be limited to twice or less. However, if the recalling is performed after 3 minutes or longer have elapsed from the first call, or in case of fire, theft and other emergencies, this rule does not have to be applied.

Remarks

- In counting the number of times of recalling, the first originating call must be excluded.
- If the recalling is performed after 3 minutes or longer have elapsed from the first originating call, it must be regarded as a new and separate call origination and not as recalling.

Test no.	3-4	Item	Transmission power other than for communication

Check Items:

In case the PS which communicates with analog telephone terminals is used for purposes other than communication, transmission power to the input point for ADPCM encoding within the PS must be at –8dBm or less on the average, and must not exceed 0dBm at the maximum level.

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.

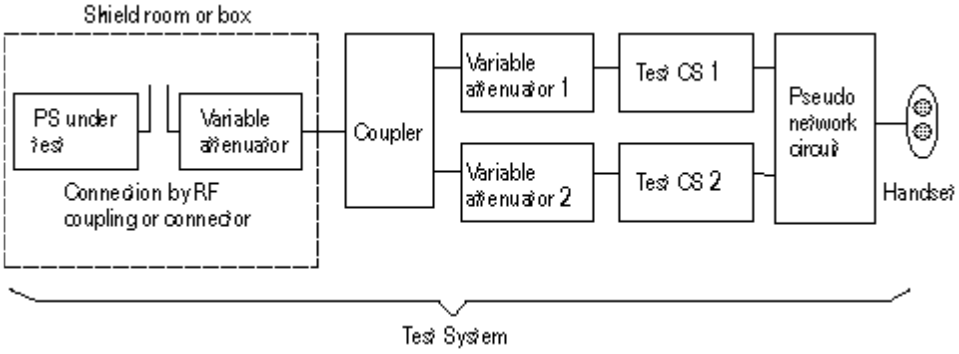


Fig. 3.1 Example configuration for compatibility confirmation tests

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 Test items and conditions

3.4.1 List of test items

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

Test number	Test item	
3-1	Location registration operation tests	
3-1-1	Location registration	
3-2	Outgoing call/disconnection operation tests	
3-2-1	Outgoing call/communication/disconnection by PS	(Note 3)
3-2-2	64k bit/s UDI outgoing call/communication/disconnection by PS	(Note 2)
3-3	Incoming call/call ending operation tests	
3-3-1	Incoming call/communication/disconnection by the test system	(Note 3)
3-3-2	64k bit/s UDI incoming call/communication/disconnection by the test system	(Note 2)
3-4	Handover operation tests	(Note 1)
3-4-1	Handover	(Note 3)
3-4-2	64k bit/s UDI Handover	(Note 2)
3-5	Tests for items specified in the Annex of the Standard	
3-5-1	Authentication test	
3-5-2	Subscriber data write-in test	
3-6	Direct communication between personal stations test	
3-6-1	Direct communication between personal stations Outgoing call/communication/ disconnection on outgoing call side	
3-6-2	Direct communication between personal stations Incoming call/communication/ disconnection on test system side	
3-6-3	Direct communication between personal stations 64k bit/s outgoing call/ communication/disconnection on outgoing call side	(Note 4)
3-6-4	Direct communication between personal stations 64k bit/s incoming call/ communication/disconnection on test system side	(Note 4)
3-7	Direct communication between personal stations in a specific group tests	(Note 5)
3-7-1	Direct communication between personal stations in a specific group Forwarding of group identification code for Direct communication between personal stations Transferring	
3-7-2	Direct communication between personal stations in a specific group Forwarding of group identification code for Direct communication between personal stations Receiving	
3-7-3	Direct communication between personal stations in a specific group Outgoing call/communication/disconnection on outgoing call side	
3-7-4	Direct communication between personal stations in a specific group Incoming call/communication/disconnection on test system side	

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.

Note 4: If PS is able to achieve a 64k bit/s direct communication between personal stations with using 2 TCH simultaneously, these tests are required.

Note 5: If PS is able to achieve a direct communication between personal stations in a specific group, these tests are required.

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 contents of compatibility confirmation tests shall be as listed below:

3.4.3.1 Location registration operation tests

Test no.	**3-1-1**	**Item**	**Location registration**
Overview : • Check that the PS performs location registration normally.			
Test procedure : 1. Perform location registration with the PS by turning the power ON or using the location registration operation. 2. Check that the location registration sequence ends normally using the test system.			

3.4.3.2 Outgoing call/disconnection operation tests

Test no.	**3-2-1**	**Item**	Outgoing call/communication/disconnection by PS
Overview : • Originate a 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 call from the PS. 3. Check that the call is setup normally and can converse normally over the PS. (Note) 4. End the call using the PS. 5. Check that the sequence ends normally using the test system.			

(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”.

Test no.	**3-3-2**	**Item**	64k bit/s UDI Incoming call/communication/disconnection by the test system

Overview :

- 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.

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 test system to the PS.
3. Check the receiving call indication, then answer the call. (Note)
4. Check that the call is setup and 64k bit/s UDI communication starts normally by protocol sequence using the test system
5. End the call using the test system.
6. Check that the sequence ends normally using the test system.

(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

Overview :

- Check that the PS switches between zones and can handover normally.

Test procedure :

1. Turn the power for the PS ON to set it for the standby state
2. Originate a call from the PS.
3. Check that the call is put through normally. (Note 1)
4. Set variable attenuator 2 to the specified attenuation.
5. Set variable attenuator 1 to the maximum setting.
6. Check that the call is connected normally after handover. (Note 2)
7. End the call using the test system.
8. Check that the sequence normally using the test system.

(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”.

Test no.	3-4-2	Item	64k bit/s UDI Handover

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 4 “Standard Pertaining to Subscriber Data Write-in of Personal Handy Phone System (Private)” shall be conducted.

3.4.3.6 Direct communication between personal stations test

Test no.	**3-6-1**	**Item**	Direct communication between personal stations Outgoing call/communication/disconnection on outgoing call side

Overview :

- Make an outgoing call from the PS of the outgoing call side, and check that the communication can be ended from the PS of the outgoing call side.

Test procedure :

1. Turn the PS ON, and set the PS to a standby state for Direct communication between personal stations.
2. Make an outgoing call from the PS of the outgoing call side.
3. Check communication.
4. Terminate the call from the PS of the outgoing call side.
5. Check on the PS of the test system side that the sequence ends normally.

Test no.	**3-6-2**	**Item**	Direct communication between personal stations Incoming call/communication/disconnection on test system side

Overview :

- Make an outgoing call from the PS of the test system side, and check that the communication can be ended from the PS of the test system side.

Test procedure :

1. Turn the PS ON, and set the PS to a standby state for Direct communication between personal stations.
2. Make an outgoing call from the PS of the test system side.
3. Check communication.
4. Terminate the call from the PS of the test system side.
5. Check on the PS of the test system side that the sequence ends normally.

Test no.	3-6-3	Item	Direct communication between personal stations 64k bit/s outgoing call/ communication/disconnection on outgoing call side

Overview :

- Make a 64k bit/s call from the PS of the outgoing call side, and check that the communication can be ended normally from the PS of the outgoing call side.

Test procedure :

1. Turn the PS ON, and set the PS to a standby state for Direct communication between personal stations.
2. Make 64k bit/s call from the PS of the outgoing call side.
3. Check that the call is setup and 64k bit/s communication starts normally by protocol sequence using the test system.
4. Terminate the call from the PS of the outgoing call side.
5. Check on the PS of the test system side that the sequence ends normally.

Test no.	3-6-4	Item	Direct communication between personal stations 64k bit/s incoming call/ communication/disconnection on test system side

Overview :

- Make a 64k bit/s call from the PS of the test system side, and check that the communication can be ended normally from the PS of the test system side.

Test procedure :

1. Turn the PS ON, and set the PS to a standby state for Direct communication between personal stations.
2. Make 64k bit/s call from the PS of the test system side.
3. Check the receiving call indication, then answer the call. (Note)
4. Check that the call is setup and 64k bit/s communication starts normally by protocol sequence using the test system.
5. Terminate the call from the PS of the test system side.
6. Check on the PS of the test system side that the sequence ends normally.

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

3.4.3.7 Direct communication between personal stations in a specific group tests

Test no.	**3-7-1**	**Item**	Direct communication between personal stations in a specific group Forwarding of group identification code for Direct communication between personal stations Transferring

Overview :

- Transfer a group identification code for direct communication between personal stations from the PS to the test system, and check that the transferring can be ended normally.

Test procedure :

1. Turn the PS ON, and set the PS to a standby state for transferring a group identification code for Direct communication between personal stations.
2. Transfer a group identification code for Direct communication between personal stations from the PS to the test system.
3. Check on the test system that the sequence ends normally.

Test no.	**3-7-2**	**Item**	Direct communication between personal stations in a specific group Forwarding of group identification code for Direct communication between personal stations Receiving

Overview :

- Transfer a group identification code for direct communication between personal stations to the PS from the test system, and check that the transferring can be ended normally.

Test procedure :

1. Turn the PS ON, and set the PS to a standby state for receiving a group identification code for Direct communication between personal stations.
2. Transfer a group identification code for Direct communication between personal stations to the PS from the test system.
3. Check on the test system that the sequence ends normally.

Test no.	3-7-3	Item	Direct communication between personal stations in a specific group Outgoing call/communication/disconnection on outgoing call side

Overview :

- Make an outgoing call from the PS of the outgoing call side, and check that the communication can be ended normally from the PS of the outgoing call side.

Test procedure :

1. Turn the PS ON, and set the PS to a standby state for Direct communication between personal stations in a specific group.
2. Make an outgoing call from the PS of the outgoing call side.
3. Check communication.
4. Terminate the call from the PS of the outgoing call side.
5. Check on the PS of the test system side that the sequence ends normally.

Test no.	3-7-4	Item	Direct communication between personal stations in a specific group Incoming call/communication/ disconnection on test system side

Overview :

- Make an outgoing call from the PS of the test system side, and check that the communication can be ended normally from the PS of the test system side.

Test procedure :

1. Turn the PS ON, and set the PS to a standby state for Direct communication between personal stations in a specific group.
2. Make an outgoing call from the PS of the test system side.
3. Check communication.
4. Terminate the call from the PS of the test system side.
5. Check on the PS of the test system side that the sequence ends normally.

Appendix A: Test items and conditions related to compatibility confirmation on private personal stations outside Japan

INTRODUCTION

This appendix is being developed for test items and conditions related to compatibility confirmation on private personal stations used outside Japan which comply with the private standards and Appendix AC 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 private personal stations used outside Japan) has the same structure s 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, 2 and 3 only describe the parts changed from the main text.

3. The "main text" used in this appendix refers to the chapters from 1 to 3 of "PERSONAL HANDY PHONE SYSTEM TEST ITEMS AND CONDITIONS FOR PRIVATE PERSONAL STATION COMPATIBILITY CONFIRMATION ARIB TECHNICAL REPORT Version 2.2 (ARIB TR-T2)".

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

Tests related to compatibility confirmation on "private personal stations used outside Japan in 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 private standards of the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28) as well as the control and communication carrier provisions for private systems used outside Japan, which are specified in the annex AC. The purpose of these tests is to check the personal station's compatibility with the radio interfaces specified in the standard of the RCR STD-28.

As a pre-condition for these tests, the operations of personal stations based on the said private standard and annex AC 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 settings for the test environment or assignments 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 control/communication carrier specifications for private systems used outside Japan, which are prescribed in the private standard and the appendix AC of the Personal Handy Phone System ARIB Standard Version 3 (RCR STD-28).

2.3.2 Basic test parameters

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.

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

Control carrier number : 30, 36

(2) Common parameters for the entire test items

Control carrier number : 30, 36

(3) Parameters specified for each test item

Communication carrier number : 1, 15, 33

2.3.3 Contents of tests

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 communication carrier number 37 in the main text shall be changed to the communication carrier number 33.

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 manufacturers. 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 Test items and conditions

3.4.3 Contents of tests

3.4.3.5 Tests for items specified in the Appendix of the Standard

These tests are out of the scope covered by this appendix.

Annex 1 : List of test items using the connection simulator

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

Test no.	Test item	M/O
1-1	Transmission characteristics	-
1-1-1	Transmission power	M
1-1-2	Transient response characteristics of burst transmission	M
1-1-3	Frequency stability	M
1-1-4	Modulation accuracy	M
1-1-5	Transmission rate accuracy	M
1-1-6	Physical slot transmission condition	M
1-1-7	Transmission timing	M
1-1-8	Transmission jitter	M
1-2	Reception characteristics	-
1-2-1	Sensitivity	M
1-2-2	Receive signal strength indicator accuracy	M

M: mandatory
O: optional (These should be selected depending on the functions of each PS)

(2) Test items for communication control methods

Test no.	Test item	M/O
2-1	Basic operation tests	-
2-1-1	Location registration — Location registration on turning the power for PS ON	M
2-1-2	Outgoing call — PS originates a call and switches to the communication state	M
2-1-3	Disconnection (PS) — A call disconnected by the onhook operation for the PS during communication.	M
2-1-4	Incoming call — After a call is received by the PS, PS is switched to the communication state by the offhook operation	M
2-1-5	Disconnection (CS) — PS receives "disconnect" message from the CS side during communication and disconnects the call.	M
2-1-6	64k bit/s UDI outgoing call - PS originates a 64k bit/s UDI call and switch to the communication state	O*1
2-1-7	64k bit/s UDI disconnection (PS) - A call disconnected by PS during a 64k bit/s UDI communication	O*1
2-1-8	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	O*1
2-1-9	64k bit/s UDI disconnection (CS) - PS receives “Disconnect” message from CS side during a 64k bit/s UDI communication and disconnects the call	O*1
2-1-10	64k bit/s UDI outgoing call - PS originates a 64k bit/s UDI call and switch to the communication state	O*3
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	O*3
2-1-12	Direct communication between personal stations Outgoing call	O
2-1-13	Direct communication between personal stations Disconnection on outgoing call side	O
2-1-14	Direct communication between personal stations Incoming call	O
2-1-15	Direct communication between personal stations Disconnection on simulator side	O
2-1-16	Direct communication between personal stations Transmission stop	O
2-1-17	Direct communication between personal stations 64k bit/s UDI outgoing call (continuous slots)	O*4
2-1-18	Direct communication between personal stations 64k bit/s UDI outgoing call (a pair of slots that are placed one slot away)	O*4
2-1-19	Direct communication between personal stations 64k bit/s UDI call disconnection (at a caller PS)	O*4
2-1-20	Direct communication between personal stations 64k bit/s UDI incoming call (continuous slots)	O*4
2-1-21	Direct communication between personal stations 64k bit/s UDI incoming call (a pair of slots that are placed one slot away)	O*4
2-1-22	Direct communication between personal stations 64k bit/s UDI call disconnection (at simulator PS)	O*4
2-1-23	Direct communication between personal stations in a specific group Forwarding group identification code for direct communication between personal stations	O*5

Test no.	Test item	M/O
2-1-24	Direct communication between personal stations in a specific group Receiving group identification code for direct communication between personal stations	O*5
2-1-25	Direct communication between personal stations in a specific group Outgoing call	O*5
2-1-26	Direct communication between personal stations in a specific group Incoming call	O*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	O
2-2-1-2	Processing after location registration fails (location registration reject: retry enable)	O
2-2-1-3	Processing after location registration fails (location registration reject: retry disable)	O
2-2-1-4	Processing after location registration fails (no response from the CS side : the number of retries limited)	O
2-2-1-5	Link channel establishment re-request transmission operation (with U-wave)	O
2-2-1-6	Operation when the link channel assignment is rejected (with all slots used by CS)	O
2-2-1-7	Location registration while the PS is moving between CSs in the same paging area (location registration not performed)	O
2-2-1-8	Location registration to operators to whom the PS has not been registered -- location registration not performed because of no coincedence with the system identification code)	O
2-2-1-9	Location registration to operators to whom the PS has not been registered -- location registration not performed because of no coincedence with the country code)	O
2-2-1-10	Location registration over 2LCCH (uplink LCCH is 100ms cycle)	O
2-2-2	Channel switching operation tests during communication	-
2-2-2-1	Channel switching during communication with CS indication : the communication physical slot within carrier within CS_	M
2-2-2-2	Channel switching during communication with CS indication : the communication physical slot between carrier within CS	M
2-2-2-3	Channel switching during communication with PS request : the communication physical slot within carrier within CS	M
2-2-2-4	Channel switching during communication with PS request : the communication physical slot between carrier within CS	M
2-2-2-5	Channel switching during communication with CS indication : the communication physical slot between carrier within CS (switching back)	M
2-2-2-6	Handover during communication with CS indication : Recalling-type to the home CS	M
2-2-2-7	Handover during communication with CS indication : Recalling-type to other CS (in the same paging area)	M
2-2-2-8	Handover with PS judgment : PS recalling-type to other CS (in the same paging area)	M

Test no.	Test item	M/O
2-2-2-9	Handover with CS indication: Recalling-type to other CS (in the same paging area) (switching back)	M
2-2-2-10	Handover with PS judgment: PS recalling-type to other CS (in other paging area)	M
2-2-2-11	64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH	O*1
2-2-2-12	64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH	O*1
2-2-2-13	64k bit/s UDI channel switching during communication with PS request : the same CS, 1st TCH	O*1
2-2-2-14	64k bit/s UDI channel switching during communication with PS request : the same CS, 2nd TCH	O*1
2-2-2-15	64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH (switching back)	O*1
2-2-2-16	64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (switching back)	O*1
2-2-2-17	64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH	O*1
2-2-2-18	64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH	O*1
2-2-2-19	64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 1st TCH	O*1
2-2-2-20	64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 2nd TCH	O*1
2-2-2-21	64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area)	O*1
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	O*1
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	O*1
2-2-2-24	64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area)	O*1
2-2-2-25	64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH	O*3
2-2-2-26	64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH	O*3
2-2-2-27	64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 1st TCH	O*3
2-2-2-28	64k bit/s UDI handover with CS indication : Recalling-type to other CS (in the same paging area), 2nd TCH	O*3
2-2-2-29	64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area)	O*3
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	O*3
2-2-2-31	64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area)	O*3
2-2-3	Restriction operation tests	-

Test no.	Test item	M/O
2-2-3-1	Operation by restriction group assigned : Restriction group applicable : No access cycle restriction	O
2-2-3-2	Operation by restriction group assigned : Restriction group non-applicable : No access cycle restriction	O
2-2-3-3	Operation by restriction group assigned Restriction group applicable : under access cycle restriction	O
2-2-3-4	Operation of the PS moving from the non-restriction area to restriction area Restriction group applicable : No access cycle restriction	O
2-2-3-5	Operation of the PS moving from the restriction area to non-restriction area Restriction group applicable : No access cycle restriction	O
2-2-3-6	Operation by CS information : CS unusable	O
2-2-4	Semi-normal outgoing call operation tests	-
2-2-4-1	Disconnection by called party busy (on the CS side)	M
2-2-4-2	ID verification at link channel establishment Calling station ID code does not matched up	M
2-2-4-3	ID verification at link channel establishment Called station ID code does not match up	M
2-2-4-4	Modifier of synchronization burst verification at link channel establishment - modifier code for 1st TCH does not match up	M
2-2-4-5	Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up	O*1
2-2-4-6	Unavailable 2nd TCH assignment at 64k bit/s communication	O*1
2-2-4-7	Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up	O*3
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	O*3
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	O*1
2-2-4-10	Direct communication between personal stations in a specific group Semi-normal outgoing call No available slot	O*5
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	M
2-2-5-2	In zone paging, the PS stops its call terminating operation when one of the other PS's has responded to the call.	O
2-2-5-3	64k bit/s UDI incoming call for a PS which does not support 64k bit/s communication	O*2
2-2-5-4	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	O*3
2-2-5-5	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	O*1
2-2-5-6	Direct communication between personal stations in a specific group Unmatched password number in receiving group identification code	O*5
2-2-6	Transmission stop operation test	-
2-2-6-1	Transmission halt, radio channel release	M

Test no.	Test item	M/O
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	O*3
2-2-7-2	64k bit/s UDI 2nd TCH disconnection with CS	O*3
2-2-7-3	64k bit/s UDI additional channel synchronization establishing with PS	O*3
2-2-7-4	64k bit/s UDI 2nd TCH disconnection with PS judgement	O*3
2-2-7-5	64k bit/s UDI additional channel synchronization establishment failure in PS judgement process	O*3

M : Mandatory

O : Option (These should be selected depending on the functions of each PS)

*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.

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

*5 : If PS is able to achieve a direct communication between personal stations in a specific group, these tests are required.

(3) Test items for those specified by the Annex of the Standard

Test no.	Test item	M/O
2-3	Tests for items specified in the Annex	-
2-3-1	Authentication tests	M
2-3-2	Subscriber data write-in tests	M

M: mandatory
O: optional (These should be selected depending on the functions of each PS)

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

Test no.	Test item	M/O
3-1	Function to prevent updating of PS specific information	M
3-2	Restriction for autonomous response detection	O
3-3	Restriction for automatic recalling	O
3-4	Transmission power other than for communication	O

M: mandatory
O: optional (These should be selected depending on the functions of each PS)

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"____" Added; "~~====~~" Deleted

Number	Page	Amendments
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 6,7) 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 6,7) ~~2-1-10~2-1-14~~ → 2-1-12~2-1-16 These test numbers are changed. 2-1-17 Direct communication between personal stations 64k bit/s UDI outgoing call (continuous slots) 2-1-18 Direct communication between personal stations 64k bit/s UDI outgoing call (a pair of slots that are placed one slot away) 2-1-19 Direct communication between personal stations 64k bit/s UDI call disconnection (at a caller PS) 2-1-20 Direct communication between personal stations 64k bit/s UDI incoming call (continuous slots) 2-1-21 Direct communication between personal stations 64k bit/s UDI incoming call (a pair of slots that are placed one slot away) 2-1-22 Direct communication between personal stations 64k bit/s UDI call disconnection (at simulator PS) 2-1-23 Direct communication between personal stations in a specific group Forwarding group identification code for direct communication between personal stations 2-1-24 Direct communication between personal stations in a specific group Receiving group identification code for direct communication between personal stations 2-1-25 Direct communication between personal stations in a specific group Outgoing call 2-1-26 Direct communication between personal stations in a specific group Incoming call
2.3-2	5~6	2-2 Application operation tests 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~~ the communication physical slot within carrier within CS 2-2-2-2 Channel switching during communication with CS indication : ~~the same CS, different carrier and slot~~ the communication physical slot between carrier within CS 2-2-2-3 Channel switching during communication with PS request : ~~the same CS, same carrier and different slot~~ the communication physical slot within carrier within CS 2-2-2-4 Channel switching during communication with PS request : ~~the same CS, different carrier and slot~~ the communication physical slot between carrier within CS 2-2-2-5 Channel switching during communication with CS indication : ~~the same CS, different carrier and slot~~ the communication physical slot between carrier within CS (switching back) 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 4, 8) 2-2-2-25 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH (Note 6,7) 2-2-2-26 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH (Note 6,7) 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 6,7) 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 6,7) 2-2-2-29 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area) (Note 6,7) 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 6,7) 2-2-2-31 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area) (Note 6,7)

<table>
<tr><th>Number</th><th>Page</th><th>Amendments</th></tr>
<tr><td>2.3-3</td><td>6~7</td><td>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 4,8)
2-2-4-7 Modifier of synchronization burst verification at 64k bit/s communication - modifier code for 2nd TCH does not match up (Note 6,7)
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 6)
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 4,8)
2-2-4-10 Direct communication between personal stations in a specific group Semi-normal outgoing call No available slot</td></tr>
<tr><td>2.3-4</td><td>7</td><td>2-2-5 Semi-normal incoming call operation tests
2-2-5-4 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 6)
2-2-5-5 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 4,8)
2-2-5-6 Direct communication between personal stations in a specific group Unmatched password number in receiving group identification code</td></tr>
<tr><td>2.3-5</td><td>7</td><td>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 6)
2-2-7-2 64k bit/s UDI 2nd TCH disconnection with CS indication (Note 6)
2-2-7-3 64k bit/s UDI additional channel synchronization establishing with PS judgement (Note 6)
2-2-7-4 64k bit/s UDI 2nd TCH disconnection with PS judgement (Note 6)
2-2-7-5 64k bit/s UDI additional channel synchronization establishment failure in PS judgement process (Note 6)</td></tr>
<tr><td>2.3-6</td><td>8</td><td>Note 6 : If PS is able to achieve a 64k bit/s UDI communication in the Slot changeable mode, these tests are required.
Note 7 : In these tests, it is confirmed that the 64k bit/s UDI communication is achieved by using a TCH.
Note 8 : In these tests, PS is set to operate the Two slot fixed type 64k bit/s UDI.
Note 9 : If PS is able to achieve a 64k bit/s direct communication between personal stations with using 2 TCH simultaneously, these tests are required.
Note 10 : If PS is able to achieve a direct communication between personal stations in a specific group, these tests are required.</td></tr>
<tr><td>2.3-7</td><td>12</td><td>2.3.3.1 Contents of tests for the technical requirements for facilities
<table>
<tr><th>Test no.</th><th>Test item</th><th>Specifications</th><th>Measurement carrier</th></tr>
<tr><td>1-1-6</td><td>Physical slot transmission condition</td><td>Can be used with 2nd level (~~40~~ 44dBμV) or lower</td><td>15</td></tr>
</table></td></tr>
<tr><td>2.3-8</td><td>22~38</td><td>Test No. 2-1-10, 2-1-11, 2-1-17~2-1-26 are added.
Test No. ~~2-1-10~2-1-14~~ → 2-1-12~2-1-16 These test numbers are changed.</td></tr>
<tr><td>2.3-9</td><td>43</td><td>Test No. 2-2-1-5
Test procedure :
2. Apply ~~41~~ 45dBμV signals of carrier number "37" by the signal generator, etc.</td></tr>
<tr><td>2.3-10</td><td>49~50</td><td>Test No. 2-2-2-1
Item Application operation : Channel switching during communication with CS indication (~~the same CS/the same carrier/different slot~~ the communication physical slot within carrier within CS)
Check items:
• The PS must receive TCH switching indication containing ~~the same CS, the same carrier and different slot~~ the communication physical slot within carrier within CS.
Test No. 2-2-2-2
Item Application operation : Channel switching during communication with CS indication (~~the same CS/different carrier and slot~~ the communication physical slot between carrier within CS)
Check items:
• The PS must receive TCH switching indication containing ~~the same CS, different carrier and slot~~ the communication physical slot between carrier within CS.</td></tr>
</table>

Number	Page	Amendments
2.3-11	51~53	Test No. 2-2-2-3 Item Application operation : Channel switching during communication with PS request (~~the same CS/the same carrier/different slot~~ the communication physical slot within carrier within CS) Check items: • The PS must receive TCH switching indication containing ~~the same CS, the same carrier and different slot~~ the communication physical slot within carrier within CS. The PS must switch to the specified channel and resume communication. Test No. 2-2-2-4 Item Application operation : Channel switching during communication with PS request (~~the same CS/different carrier/different slot~~ the communication physical slot between carrier within CS) Check items: • 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~~ the communication physical slot between carrier within CS. Test No. 2-2-2-5 Item Application operation : Channel switching during communication with CS indication (~~the same CS/different carrier/different slot~~ the communication physical slot between carrier within CS) (switching back) Check items: • The PS must receive a switching indication containing ~~the same CS, different carrier and different slot~~ the communication physical slot between carrier within CS during communication.
2.3-12	73~79	Test No. 2-2-2-25~2-2-2-31 are added.
2.3-13	92~95	Test No. 2-2-4-7~2-2-4-10 are added.
2.3-14	99~101	Test No. 2-2-5-4~2-2-5-6 are added.
2.3-15	103~107	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.
2.3-16	110	2.3.3.4 Contents of tests for network protection and effective use of frequency Test No. 3-4 Item Transmission power other than for communication Check Items: In case the PS which communicates with analog telephone terminals is used for purposes other than communication, transmission power to the input point for ADPCM encoding within the PS must be at ~~–15~~ –8dBm or less on the average, and must not exceed 0dBm at the maximum level.
3.4-1	112~113	3.4.1 List of test items 3-6-3 Direct communication between personal stations 64k bit/s outgoing call/ communication/disconnection on outgoing call side (Note 4) 3-6-4 Direct communication between personal stations 64k bit/s incoming call/ communication/disconnection on test system side (Note 4) 3-7 Direct communication between personal stations in a specific group tests (Note 5) 3-7-1 Direct communication between personal stations in a specific group Forwarding of group identification code for Direct communication between personal stations Transferring 3-7-2 Direct communication between personal stations in a specific group Forwarding of group identification code for Direct communication between personal stations Receiving 3-7-3 Direct communication between personal stations in a specific group Outgoing call/communication/disconnection on outgoing call side 3-7-4 Direct communication between personal stations in a specific group Incoming call/communication/disconnection on test system side Note 4: If PS is able to achieve a 64k bit/s direct communication between personal stations with using 2 TCH simultaneously, these tests are required. Note 5: If PS is able to achieve a direct communication between personal stations in a specific group, these tests are required.
3.4-2	118	3.4.3.6 Direct communication between personal stations test Test No. 3-6-3~3-6-4 are added.
3.4-3	119~120	3.4.3.7 This item is added. Test No. 3-7-1~3-7-4 are added.

<table>
<tr><th>Number</th><th>Page</th><th>Amendments</th></tr>
<tr><td>AN1-1</td><td>128</td><td>Annex 1 : List of test items using the connection simulator
(2) Test items for communication control methods

<table>
<tr><th>Test no.</th><th>Test item</th><th>M/O</th></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~~ the communication physical slot within carrier within CS</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~~ the communication physical slot between carrier within CS</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~~ the communication physical slot within carrier within CS</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~~ the communication physical slot between carrier within CS</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~~ the communication physical slot between carrier within CS (switching back)</td><td>M</td></tr>
</table>
</td></tr>
<tr><td>AN1-2</td><td>127~131</td><td>Test No. 2-1-10~2-1-26, 2-2-2-25~2-2-2-31, 2-2-4-7~2-2-4-10, 2-2-5-4~2-2-5-6, 2-2-7-1~2-2-7-5 are added.</td></tr>
<tr><td>AN1-3</td><td>131</td><td>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.
*4 : If PS is able to achieve a 64k bit/s direct communication between personal stations with using 2 TCH simultaneously, these tests are required.
*5 : If PS is able to achieve a direct communication between personal stations in a specific group, these tests are required.</td></tr>
</table>

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ARIB TR-T2 Version 2.1

AMENDMENT HISTORY

"____" Added; "~~====~~" Deleted

Number	Page	Amendments
2.3-1	9	2.3.2.1 Basic parameters (2) Common parameters for the entire test items ~~Note~~ → Note 1
2.3-2	9	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.
3.4-1	112	3.4.1 List of test items 3-2-1 Outgoing call/communication/disconnection by PS (Note 3)
3.4-2	112	3-3-1 Incoming call/communication/disconnection by the test system (Note 3)
3.4-3	112	3-4-1 Handover (Note 3)
3.4-4	113	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	114	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	115	3.4.3.3 Incoming call/call ending operation tests **Test no. 3-3-1 Item** Incoming call/communication/disconnection by the test system system **Test procedure :** 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) (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".
3.4-7	115	**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.
3.4-8	116	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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AMENDMENT HISTORY

"____" Added; "~~———~~" Deleted

Number	Page	Amendments
1-1	1	1.1 Overview In the 4th line, the Personal Handy Phone System ARIB Standard Version ~~2~~ 3 (RCR STD-28).
2.1-1	2	2.1 Purpose In the 2nd line, the Personal Handy Phone System ARIB Standard Version ~~2~~ 3 (RCR STD-28).
2.3-1	4	2.3.1.2 Test items related to the communication control methods 2-1 Basic operation tests 2-1-6 64k bit/s UDI outgoing call — PS originates a 64k bit/s UDI call and switch to the communication state (Note 4) 2-1-7 64k bit/s UDI disconnection (PS) A call disconnected by PS during a 64k bit/s UDI communication (Note 4) 2-1-8 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) 2-1-9 64k bit/s UDI disconnection (CS) — PS receives "Disconnect" message from CS side during a 64k bit/s UDI communication and disconnects the call (Note 4) 2-1-10 Direct communication between Personal Stations Outgoing Call 2-1-11 Direct communication between Personal Stations Disconnection on Outgoing Call Side 2-1-12 Direct communication between Personal Stations Incoming Call 2-1-13 Direct communication between Personal Stations Disconnection on Simulator Side 2-1-14 Direct communication between Personal Stations Transmission Stop
2.3-2	5~6	2-2 Application operation tests 2-2-2 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 4) 2-2-2-12 64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (Note 4) 2-2-2-13 64k bit/s UDI channel switching during communication with PS request : the same CS, 1st TCH (Note 4) 2-2-2-14 64k bit/s UDI channel switching during communication with PS request : the same CS, 2nd TCH (Note 4) 2-2-2-15 64k bit/s UDI channel switching during communication with CS indication : the same CS, 1st TCH (switching back) (Note 4) 2-2-2-16 64k bit/s UDI channel switching during communication with CS indication : the same CS, 2nd TCH (switching back) (Note 4) 2-2-2-17 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 1st TCH (Note 4) 2-2-2-18 64k bit/s UDI handover with CS indication : Recalling-type to the home CS, 2nd TCH (Note 4) 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 4) 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 4) 2-2-2-21 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in the same paging area) (Note 4) 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 4) 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 4) 2-2-2-24 64k bit/s UDI handover with PS judgment : PS recalling-type to other CS (in other paging area) (Note 4)

Number	Page	Amendments
2.3-3	6~7	2-2-4 Semi-normal outgoing call operation tests 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 4) 2-2-4-6 Unavailable 2nd TCH assignment at 64k bit/s communication (Note 4)
2.3-4	7	2-2-5 Semi-normal incoming call operation tests 2-2-5-3 64k bit/s UDI incoming call for a PS which does not support 64k bit/s communication (Note 5)
2.3-5	8	Note 4 : If PS is able to achieve a 64k bit/s communication with using 2 TCH simultaneously, these tests are required. Note 5 : If PS does is not tested by the test items marked note 4, this test is required.
2.3-6	8	2.3.2.1 Basic parameters (1) Parameters which are pre-registered in the PS prior to test Direct communication between Personal stations PS paging number : 1 (PS paging number of simulator : "2")
2.3-7	11	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
2.3-8	118~21 24~28	Test No. 2-1-6 ~ 2-1-14 are added.
2.3-9	59~72	Test No. 2-2-2-11 ~ 2-2-2-24 are added.
2.3-10	89~91	Test No. 2-2-4-4 ~ 2-2-4-6 are added.
2.3-11	98	Test No. 2-2-5-3 are added.
2.3-12	108	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 ~~2~~ 3 Annex 3 "Standard Pertaining to Authentication of Personal Handy Phone System (Private)"
2.3-13	108	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 ~~2~~ 3 Annex 4 "Standard Pertaining to Subscriber Data Write-in of Personal Handy Phone System (Private)" shall be conducted.
3.4-1	112~113	3.4.1 List of test items 3-2-2 64k bit/s UDI outgoing call/communication/disconnection by PS (Note 2) 3-3-2 64k bit/s UDI incoming call/communication/disconnection by the test system (Note 2) 3-4-2 64k bit/s UDI Handover (Note 2) 3-6 Direct communication between personal stations test 3-6-1 Direct communication between personal stations Outgoing call/communication/ disconnection on outgoing call side 3-6-2 Direct communication between personal stations Incoming call/communication/ disconnection on test system side Note 2: If PS is able to achieve a 64k bit/s communication with using 2 TCH simultaneously, these tests are required.
3.4-2	114	3.4.3 Contents of tests Test No. 3-2-2 is added.
3.4-3	115	Test No. 3-3-2 is added.
3.4-4	116	Test No. 3-4-2 is added.
3.4-5	117	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 ~~2~~ 3 (RCR STD-28) Annex 4 “Standard Pertaining to Subscriber Data Write-in of Personal Handy Phone System (Private)” shall be conducted.
3.4-6	117	3.4.3.6 Direct communication between personal stations test Test No. 3-6-1 and 3-6-2 are added.

Number	Page	Amendments
A-1	122	**INTRODUCTION** The Personal Handy Phone System ARIB Standard Version ~~2~~ 3 (RCR STD-28).
A-2	123	**Chapter 1 General Facts** 1.1 Overview the Personal Handy Phone System ARIB Standard Version ~~2~~ 3 (RCR STD-28).
A-3	124	**Chapter 2 Connection simulator tests** 2.1 Purpose the Personal Handy Phone System ARIB Standard Version ~~2~~ 3 (RCR STD-28).
AN1-1	127~131	Annex 1 : List of test items using the connection simulator (2) Test items for communication control methods Test no. 2-1-6 ~ 2-1-14 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. 2-2-5-3 is added. lower part of the table, *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.

PERSONAL HANDY PHONE SYSTEM

TEST ITEMS AND CONDITIONS FOR PRIVATE PERSONAL STATION COMPATIBILITY CONFIRMATION

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ARIB TR–T2 VERSION 2.2

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