PHS MoU Document
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Title : PHS-FWA System : Interface Specifications between FWA Subscriber Unit or FWA personal Station and FWA Cell Station (Common Air Interface)	
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History of Revised Versions

Version	Date	Outline
01	Dec. 17, 1996	Established
02	Dec. 19, 1997	Table 1-1/C-IF2.01 regarding Overlap sending and Subscriber line test transmission is added. Appendix A regarding the usage of IA5 character code in the test result area is added.
03	June 7, 2000	Changed all WLL into FWA. Clause 2 and Sub-clause 3.7 are changed. Sub-clause 3.8 is added and Clause 5 is deleted. In Figure 3.4/C-IF2.01, “UP message” is corrected to “SETUP message”.

PHS-FWA System: Interface Specifications
between FWA Subscriber Unit or FWA personal Station
and FWA Cell Station(Common Air Interface)
- based on RCR STD-28 Appendix AB -

Contents

1. General

The same specification as is specified in RCR STD-28 Appendix AB is applied except for the detailed specifications described in clause 2.

2. Interface Specification

This Interface Specification is fundamentally based on RCR STD-28 Appendix AB. This clause describes only the parts detailed from RCR STD-28 Appendix AB and except for the detailed items, this Interface specification conforms to RCR STD-28 Appendix AB.
Regarding Subscriber line test signal transmission, the detailed specifications are summarized in the following table. (Table 1-1/C-IF2.01)

Remarks
As the expression is fundamentally based on RCR STD-28 Appendix AB, the terminologies like as "PS" or "CS" are used in this clause. In this clause, PS always means WPS or WSU. And CS always means WCS.

Table1-1/C-IF2.01 Detailed specifications from RCR STD-28 Appendix AB

Item	Detailed specifications
Attached document 4 2. Supplementary services overview item Subscriber line test signal transmission	In case of A, measured value is coded in "test result" area in test result element (IA5 character code" of ITU-T recommendation).

3. Comments for Implementation

3.1 Calling Number Delivery

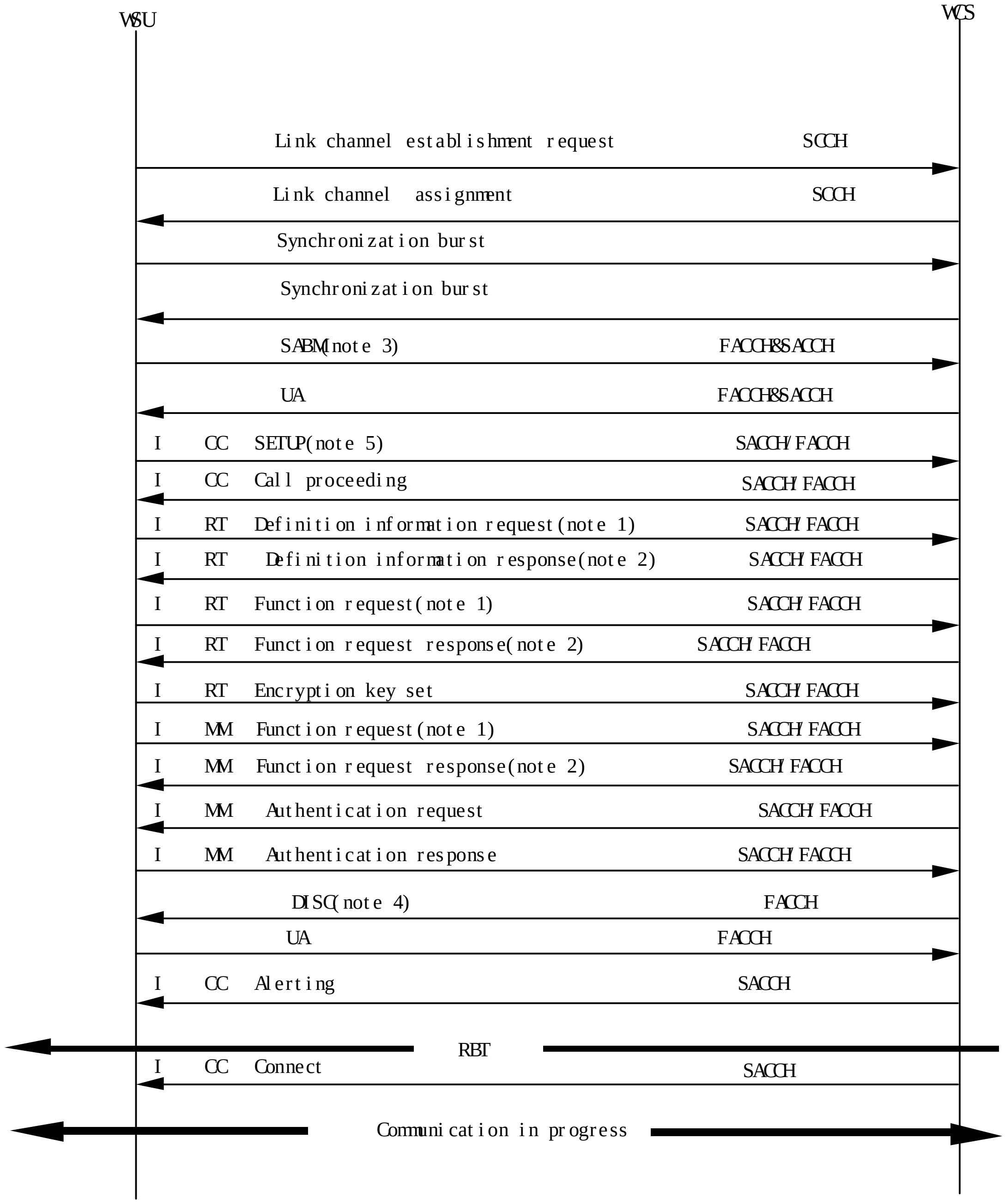
Originating ID is sent with Calling Party Number information element contained in SETUP message in both case of Originating Call and Terminating Call.

3.2 DTMF signal transmission

DTMF signal transmission is a function by which DTMF signals are transmitted from WSU or WPS to WCS. By this function WCS receives DTMF signal information as a call control (CC) messages, and generates DTMF tone. WSU also will have a function by which DTMF tone is directly transmitted to SN via traffic channel. In case of WSU if the both functions work at the same time, DTMF tones will be collided at SN, so it is avoided this case.

3.3 Originating Call from Ground Start PBX

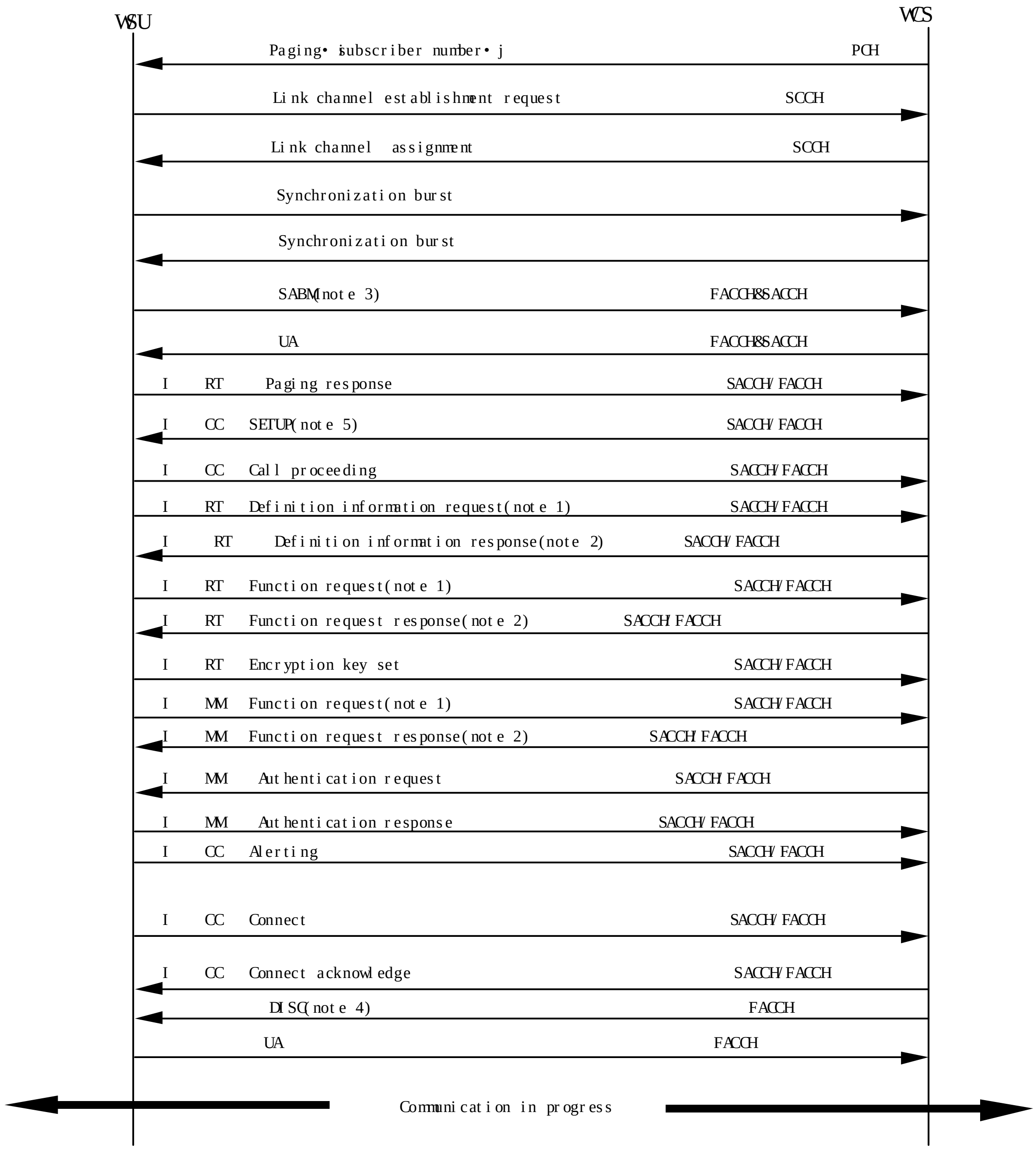
In case of Originating Call from Ground Start PBX, Steady-signal can be included in SETUP message to the CS side.



(note 1) This control signal can be omitted as necessary.
(note 2) This control signal is for the previous control signal with the (note 1) attached.
It is transmitted only when the relevant control signal is received.
(note 3) The layer 3 sequence of the service channel establishment phase is activated after the FACCH layer 2 multiframe acknowledged operation mode is established.
(note 4) Before layer 2 DISC transmission on FACCH, the layer 2 multiframe acknowledged operation mode should be established on SACCH.
(note 5) Steady-signal information element can be included in this message as necessary.

Figure 3.3/C-IF2.01 Originating call sequence from Ground Start PBX

3.4 Direct Dialling In (DDI) Service



(note 1) This control signal can be omitted as necessary.
(note 2) This control signal is for the previous control signal with the (note 1) attached. It is transmitted only when the relevant control signal is received.
(note 3) The layer 3 sequence of the service channel establishment phase is activated after the FACCH layer 2 multiframe acknowledged operation mode is established.
(note 4) Before layer 2 DISC transmission on FACCH, the layer 2 multiframe acknowledged operation mode should be established on SACCH.
(note 5) Extension number is set to Called Party Number information element contained in SETUP message.

Figure 3.4/C-IF2.01 Terminating call sequence in DDI service

3.5 Howler Tone Sending

Howler Tone Sending is out of scope of RCR STD-28 Appendix AB. This function is option in this system. Examples of Howler Tone Sending sequence is described in this section in various case of clearing initiated by network. Howler Tone Sending on WSU side may be started by expiration of the timer for supervision of "long time off-hook" or by receiving the Release message containing cause #102 "Recovery due to timer expiration".

3.5.1 Case 1:Howler Tone Sending by WSU (TE uses in-band tone/announcement when tone/announcement is offered from SN)

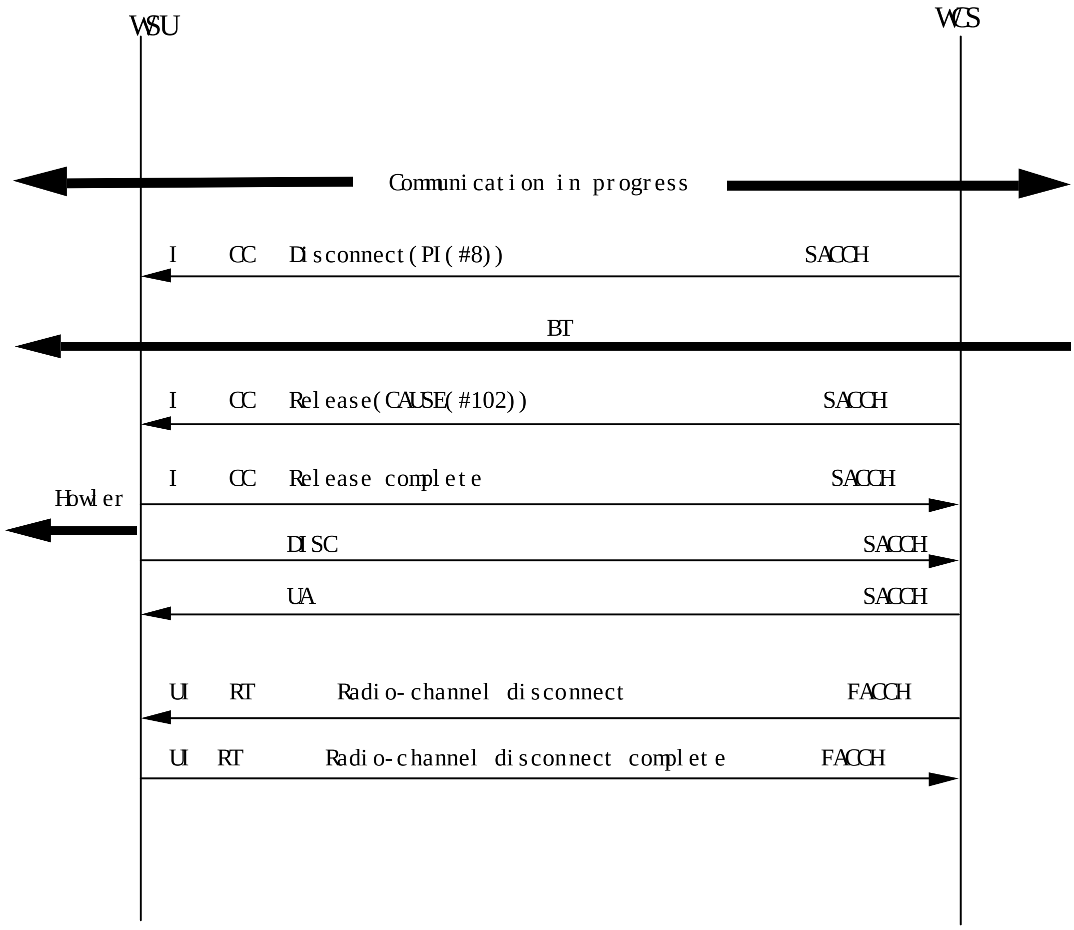


Figure 3.5.1/C-IF2.01 Case 1:Howler Tone Sending by WSU

3.5.2 Case 2:Howler Tone Sending by WSU (TE doesn't use in-band tone/announcement when tone/announcement is offered from SN)

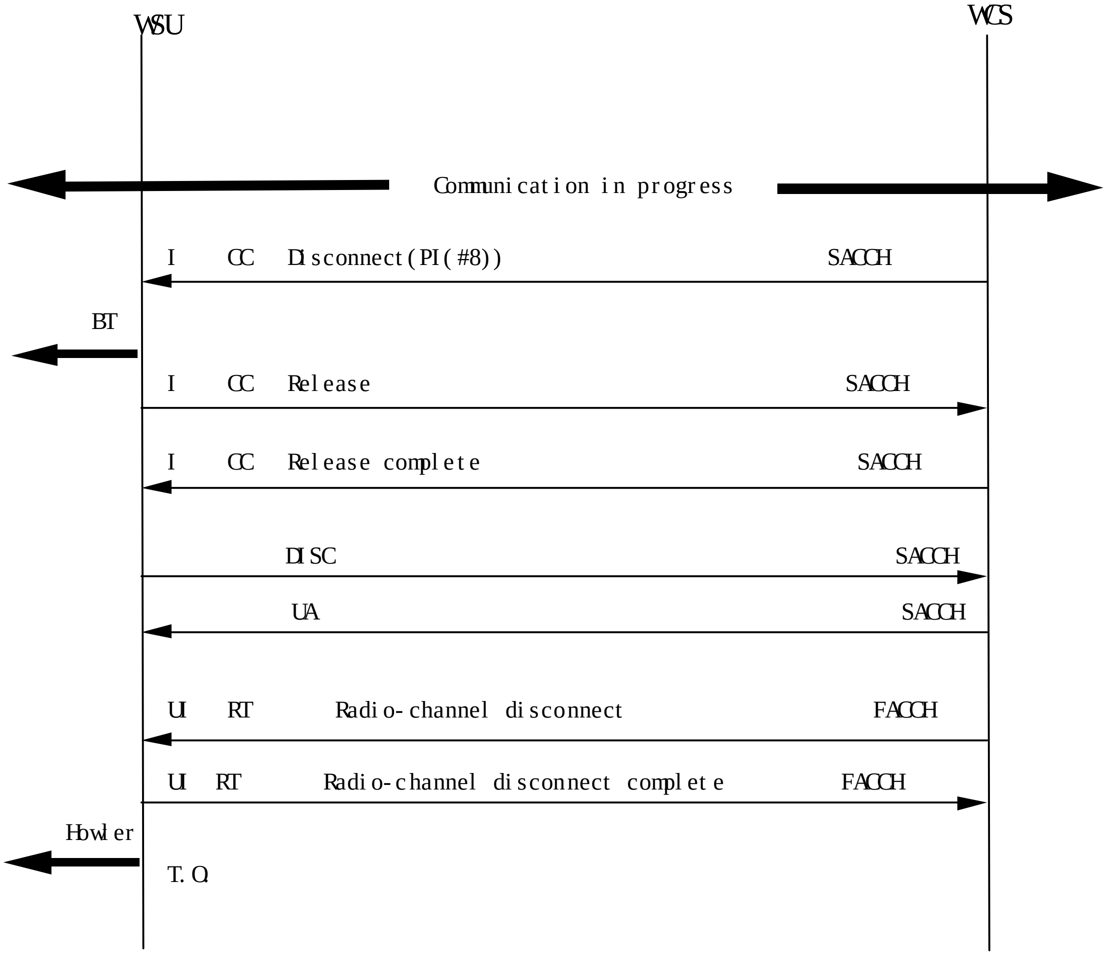


Figure 3.5.2/C-IF2.01 Case 2:Howler Tone Sending by WSU

3.5.3 Case 3:Howler Tone Sending by WSU (when tone/announcement are not offered from SN)

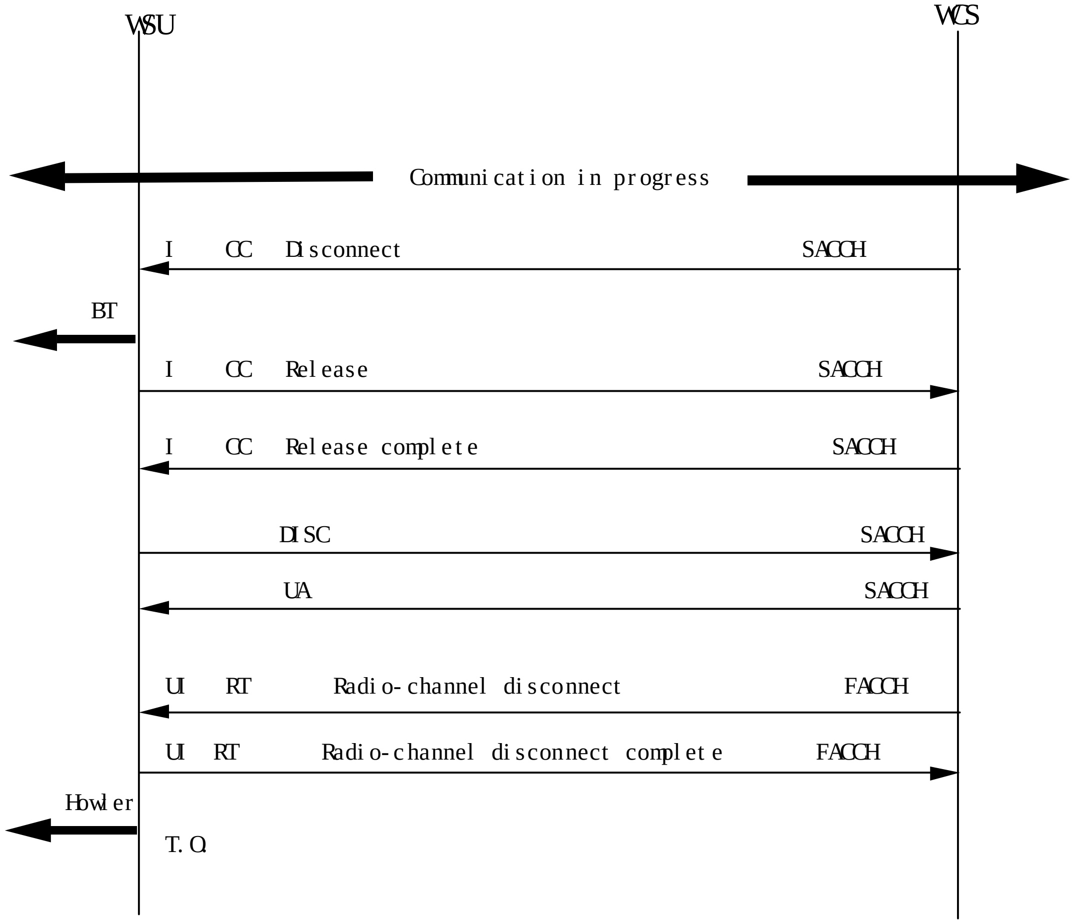


Figure 3.5.3/C-IF2.01 Case 3:Howler Tone Sending by WSU

3.5.4 Case in which Howler Tone can't be sent by WSU (when release signals are not offered from SN)

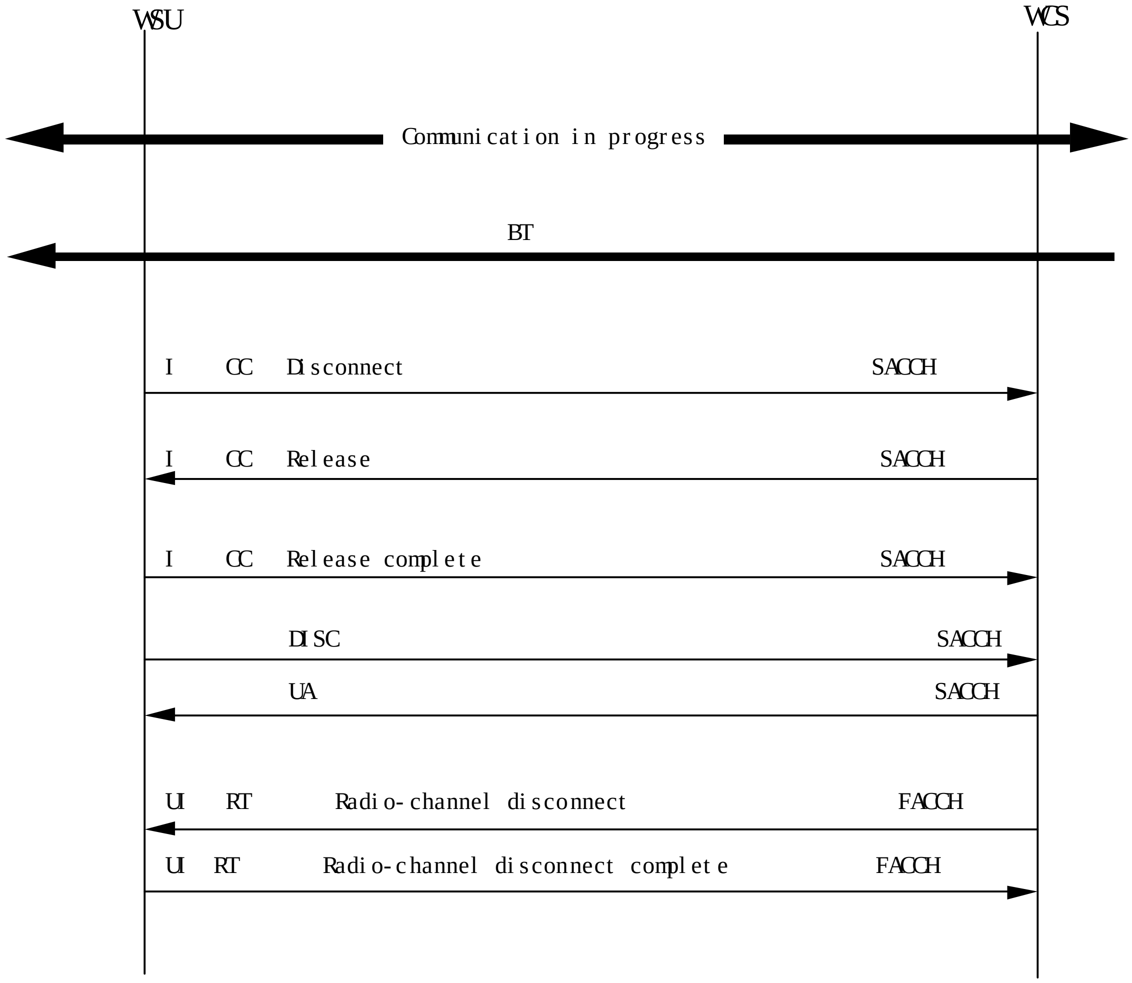


Figure 3.5.4/C-IF2.01 Case in which Howler Tone can't be sent by WSU

3.6 Channel Switching During Communication

This function conforms to RCR STD-28 Appendix AB.

3.7 Emergency Call Connection

In this sub-clause, an example about communication method of Emergency Call Connection is described.

For originating emergency call, in this system, link channel establishment request or link channel establishment re-request contains information of call type. If emergency call has be request from TE, WSU sends link channel establishment request as call type (octet 5) is set to (01)"emergency call" to WCS. In case of non-emergency call, WSU sends link channel establishment request as call type (octet 5) is set to (00)"general call" to WCS.

The treatment on WCS side depends on operator implementation, after recognizing link channel establishment request for originating emergency call.

3.8 Emergency Call Holding

Emergency call holding procedure depends on operator implementation.

4. Reference

- Personal Handy Phone System ARIB standard (RCR STD-28)
- Test items and conditions for public personal station compatibility confirmation (RCR STD-28)

Appendix A - The usage of "IA5 character code" of ITU-T recommendation in the "test result" area of test result element

The usage of "IA5 character code" of ITU-T recommendation in the "test result" area of test result element is specified as follow.

- A decimal point accounts for 1 figure ,when it is put in measured value.
- A unit of resistance value is an ohm, a unit of capacity is μF and a unit of voltage is V, but each measured value doesn't give a unit.
- When scale of measured value(ex. K,M etc.) is necessary, alphabet is given after measured value.
- When infinity is necessary as measured value, "infi" code is substituted for measured value.
- When distinction of plus and minus is necessary for measured value, + (plus) or - (minus) is given before measured value of its measurement item.