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**3RD GENERATION  
PARTNERSHIP  
PROJECT 2  
"3GPP2"**

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## ***Answer Hold (Stage 1)***

***Revision: 0***

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## Revision History

<b>Revision</b>		<b>Date</b>
Rev. 0	Initial Publication	December 1999

### **Note**

This specification is extracted from TIA TR45.2 PN-4550 Rev. 7, November 1999.

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## FOREWORD

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This Interim Standard contains recommendations for supporting the wireless subscriber feature “Answer Hold (AH)”.

The *ANSI/TIA/EIA-41-D* recommendation upon which this Interim Standard builds is:

- *TIA/EIA-41-D Cellular Radiotelecommunications Intersystem Operations; Telecommunications Industry Association; 1997.*

## ASSUMPTIONS

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The following items are basic understandings used during the development of this document:

- a. The AH feature shall be applicable to all terminating call deliveries (e.g., unanswered calls in the Alerting or Call Waiting state) permitting called AH subscribers to place a terminating call on hold upon answer allowing conversation to begin at a later more convenient time.
- b. When the AH authorized called party activates the AH feature, the calling party shall be provided an appropriate network announcement (e.g., as defined by the service provider) indicating the call delivery is inprogress.
- c. Terminating calls are in the answer state when AH is invoked (i.e., answer supervision is returned).
- d. A terminating call in the AH state shall normally remain in the AH state until:
  - the called AH subscriber retrieves the call (e.g., **SEND** ).
  - the calling party disconnects.
- e. AH and Call Waiting (CW) subscribers, active with an inprogress call and with a terminating call in the AH state, shall be permitted to retrieve the call in the AH state with normal CW procedures (e.g., **SEND** [terminate AH treatment, place the other party on hold, connect the AH called subscriber to the calling party in the AH state, and enter the 2-way CW state]).
- f. When the AH service has been invoked, the AH state should be maintained during all handoff processes.
- g. When the call is terminated for any reason, the AH state shall be automatically released.

# 1. INTRODUCTION

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## 1.1 OBJECTIVE

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This Interim Standard (IS) presents Stage-1 (new chapter *TIA/EIA-664-B*), Stage-2 (*TIA/EIA-41.3-D* enhancements), and Stage-3 (*TIA/EIA-41.5-D* and *TIA/EIA-41.6-D* enhancements) recommendations for supporting the Answer Hold (AH) feature use in the Wireless Radiotelephone Service.

## 1.2 SCOPE

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This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the Answer Hold (AH) feature.

## 1.3 ORGANIZATION

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This document is organized as per *TIA/EIA-41-D* and *TIA/EIA-664-A*.

# 2. REFERENCES

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## 2.1 Normative References

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ANSI T1 Standards:

- *ANSI.T1.*

ITU:

- *Recommendation*

TIA/EIA:

- *ANSI/TIA/EIA-41-D Cellular Radiotelecommunications Intersystem Operations*; Telecommunications Industry Association; December 1997.
- *TIA/EIA-IS-664 Cellular Features Description* Telecommunications Industry Association; January 1996.

## 2.2 Informative References

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### 3. **TIA/EIA-664-XXX “CELLULAR FEATURE DESCRIPTIONS” MODIFICATIONS**

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This section provides the Stage-1 feature description for Answer Hold (AH) according to the structure of *TIA/EIA-664*.

#### 3.1 **Definitions**

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(*TIA/EIA-664-001-B*, page 4)

##### **Answer Hold (AH)**

---

See Answer Hold.

#### **X.1 Answer Hold (AH)**

---

(new Chapter for *TIA/EIA-664-XXX-B*)

Answer Hold (AH) provides a called subscriber the capability to answer the call, but selectively delay the conversation (e.g., calls in the alerting or Call Waiting state). The incoming call is provided an appropriate network announcement to notify the calling party to please hold.

AH is also applicable to incoming calls being delivered to called AH authorized subscribers as Call Waiting (CW) calls.

AH authorized subscribers, with AH active on an unanswered incoming call, shall resolve the call in the AH state prior to originating a new outgoing call or call leg.

New incoming calls to AH authorized subscribers, with AH active on an unanswered incoming call, shall receive the appropriate busy treatment (e.g., busy tone, redirected to voice mail, etc.) for the called AH subscriber. As a result, only one incoming call shall be in the AH state per each AH called subscriber).

##### **Applicability to Telecommunications Services**

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AH is applicable to voice telecommunications services.

#### **X.1.1 Normal Procedures With Successful Outcome**

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##### **Authorization**

---

AH may be generally available or may be provided after pre-arrangement with the service provider.

##### **De-Authorization**

---

AH may be withdrawn at the subscriber’s request or for administrative reasons.

**Registration**

---

AH has no registration.

**De-Registration**

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AH has no de-registration.

**Activation**

---

AH shall be activated upon authorization.

**De-Activation**

---

AH shall be de-activated upon de-authorization.

**Invocation**

---

AH may be invoked when there is an un-answered incoming call while the called AH subscriber is being alerted or active in a call (e.g., MS receiving alerting treatment MS receiving Call Waiting [CW] treatment).

**Normal Operation With Successful Outcome**

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When the called AH subscriber has placed a calling party in the Answer Hold state, the called AH subscriber is considered busy for other incoming calls. Services applicable to a busy called subscriber should be invoked for incoming calls.

	<b>State</b> Alerting	<b>Condition</b>	The called AH mobile station is in the alerting state for an incoming call delivery.
<b>XID</b>	<b>Call Party Action</b>		<b>System Reaction</b>
1a1	The called subscriber invokes the AH feature using an MS specific procedure.		The calling party is placed in the Answer Hold state, and has AH treatment applied (e.g., network provided default AH announcement, the called AH subscriber's pre-registered network provided announcement). Go to the Answer Hold state.

**Table 1.1a: Alerting State for Answer Hold**

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	<b>State</b> 2-way CW notification	<b>Condition</b> The called AH subscriber is in a 2-way conversation with the other party and call waiting notification is applied.
<b>XID</b>	<b>Call Party Action</b>	<b>System Reaction</b>
1b1	The called subscriber invokes the AH feature using an MS specific procedure.	The calling party is placed in the Answer Hold state and has AH treatment applied (e.g., network provided default AH announcement, the called AH subscriber's pre-registered network provided announcement). Go to the 2-way CW state.

**Table 1.1b: 2-Way CW Notification State for Answer Hold**

	<b>State</b> Answer Hold	<b>Condition</b> The calling party is in the AH state with the appropriate AH treatment being applied.
<b>XID</b>	<b>Call Party Action</b>	<b>System Reaction</b>
1c1	The called subscriber retrieves the call in the Answer Hold state using an MS specific procedure.	The calling party has AH treatment removed, the AH subscriber is connected in conversation with the calling party. Go to 2-way state.
1c2	The called AH subscriber enters <span style="border: 1px solid black; padding: 2px;">END</span> .	Apply recall distinctive alerting toward the called AH subscriber. Optionally apply audible alerting tone toward the held party. Go to the Alerting state.
1c3	The calling party abandons.	Release the calling party. Go to the Idle state.

**Table 1.1c: Answer Hold State for Answer Hold**

**Call Detail Record**

---

The system should record call detail information for the following:

- a. AH invocation events.
- b. AH usage events.

See *ANSI-124* for the specific information to be included for each element.

## X.1.2 Exception Procedures or Unsuccessful Outcome

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### Registration

---

None identified.

### De-Registration

---

None identified.

### Activation

---

None identified.

### De-Activation

---

None identified.

### Invocation

---

None identified.

### Exceptions While Roaming

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None identified.

### Exceptions During Intersystem Handoff

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[When handing off from a CDMA to AMPS when a calling party has been placed in Answer Hold, two alternatives are identified:](#)

1. [When the called user who has placed a party on AH is handed-off from CDMA to AMPS while the calling party is in the held state, the network should disconnect the held CDMA call and apply ring back and reconnect of the held call in analog mode to the called party.](#)
2. [When the called user who has placed a party on AH is handed-off from CDMA to AMPS while the calling party is in the held state, the network should drop the call and provide appropriate treatment to the calling party.](#)

[It should be an operator choice which treatment they wish to use.](#)

In the case of an intersystem handoff where the system to which the call is handed off to does not support this feature, the same treatment options as above may be applied:

1. When the called user who has placed a party on AH is handed-off to a system that does not support this feature while the calling party is in the held state, the network should disconnect the held call and apply ring back and reconnect of the held call to the called party within the new system.
2. When the called user who has placed a party on AH is handed-off to a system that does not support this feature while the calling party is in the held state, the network should drop the call and provide appropriate treatment to the calling party.

It should be an operator choice which treatment they wish to use.

None identified.

### **X.1.3 Alternate Procedures**

---

None identified.

### **X.1.4 Interactions With Other Cellular Services**

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#### **Answer Hold (AH)**

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Not applicable.

#### **Call Delivery (CD)**

---

None identified.

#### **Call Forwarding—Busy (CFB)**

---

CFB takes precedence over AH. That is, calls arriving to a subscriber with AH and CFB active, and the subscriber is busy (e.g., the called subscriber is not able to accept another call); the call shall be diverted to the CFB forward-to number.

#### **Call Forwarding—Default (CFD)**

---

None identified.

#### **Call Forwarding—No Answer (CFNA)**

---

None identified.

**Call Forwarding—Unconditional (CFU)**

---

None identified.

**Call Transfer (CT)**

---

When the called subscriber has placed a calling party in the AH state, CT can not be invoked.

**Call Waiting (CW)**

---

CW is invoked before AH. That is, calls arriving to a subscriber with AH and CW active, and the subscriber is busy, and the subscriber is able to receive a second call (e.g., no other call is waiting to be answered), the arriving call is presented to the subscriber with CW notification. The called subscriber may then invoke AH.

Calls arriving to a subscriber with AH and CW active, and the subscriber is busy, and the subscriber is unable to receive a second call (e.g., another call is waiting to be answered or another call is in the hold or AH state), the arriving call is not presented to the subscriber; instead, the call shall be provided the appropriate default busy treatment (e.g., CFB, CFD, busy tone).

**Calling Name Presentation (CNAP)**

---

CNAP is invoked before AH. That is, calls arriving to a subscriber with AH and CNAP active, the call is delivered with CNAP first. The called subscriber may then invoke AH.

**Calling Name Restriction (CNAR)**

---

None identified.

**Calling Number Identification Presentation (CNIP)**

---

CNIP is invoked before AH. That is, calls arriving to a subscriber with AH and CNIP active, the call is delivered with CNIP first. The called subscriber may then invoke AH.

**Calling Number Identification Restriction (CNIR)**

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None identified.

**Conference Calling (CC)**

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When the called subscriber has placed a calling party in the AH state, CC can not be invoked.

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**Do Not Disturb (DND)**

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DND takes precedence over AH. A call to a subscriber with both AH and DND active shall be given DND treatment immediately and not be given AH treatment.

**Emergency Services (Future)**

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None identified.

**Flexible Alerting (FA)**

---

Interaction between FA and AH is beyond the scope of this Standard.

**Message Waiting Notification (MWN)**

---

None identified.

**Mobile Access Hunting (MAH)**

---

Interaction between MAH and AH is beyond the scope of this Standard.

**Password Call Acceptance (PCA)**

---

PCA is invoked before AH. That is, calls arriving to a subscriber with AH and PCA active, the call is screened by PCA first. If PCA accepts the call, an attempt is made to deliver or terminate the call to the called subscriber. The called subscriber may then invoke AH.

**Preferred Language (PL)**

---

None identified.

**Priority Access and Channel Assignment (PACA)**

---

PACA affects AH. A call to a subscriber waiting for a PACA channel is considered to be busy, if both CFB and AH are active, the call shall be given CFB treatment.

**Remote Feature Control (RFC)**

---

None identified.

**Selective Call Acceptance (SCA)**

---

SCA is invoked before AH. That is, calls arriving to a subscriber with AH and SCA active, the call is screened by SCA first. If SCA accepts the call, an attempt is made to deliver or terminate the call to the called subscriber. The called subscriber may then invoke AH.

**Subscriber PIN Access (SPINA)**

---

None identified.

**Subscriber PIN Intercept (SPINI)**

---

None identified.

**Three-Way Calling (3WC)**

---

None identified.

**User Selective Call Forwarding (USCF) (Future)<sup>1</sup>**

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For further study.

**Voice Message Retrieval (VMR)**

---

None identified.

**Voice Privacy (VP)**

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None identified.

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<sup>1</sup> User Selective Call Forwarding is not a feature currently defined. This description is retained to describe an intent of feature interaction.

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