E1 ALS70D Signaling Examples

This chapter shows examples of E1 ALS70D signaling that use the following call control elements:

- Inpulse rules
- Outpulse rules
- Host commands and reports

Each example begins with a brief explanation of the call, followed by a graphic representation of the call flow. These diagrams illustrate system processing and information flow between the VCO and the host, and between the VCO and the connected equipment. The direction of the information flow is indicated by arrows under the message data.

Example #1—Incoming Call Using Inpulse Rules

Example #1 illustrates a simple DTMF digit collection process after an incoming seize on the SDS E1 ALS70D circuit at port address $00 A9. A default inpulse rule is executed to perform DTMF digit collection on this circuit.

The following actions are performed in this inpulse rule example:

- WINK ENAB changes the E1 to the Send Number state after the DTMF receiver port is enabled.
- DTMF digits are collected and stored in Field 1 and ANI.
- WINK NOW indicates that all digits have been received, and the call makes the transition to Number Sent state.
- TONE NOW places a progress tone (ringing tone) on the port for 10 seconds.
- The incoming call is answered.

Example #1—Incoming Call Using Inpulse Rules

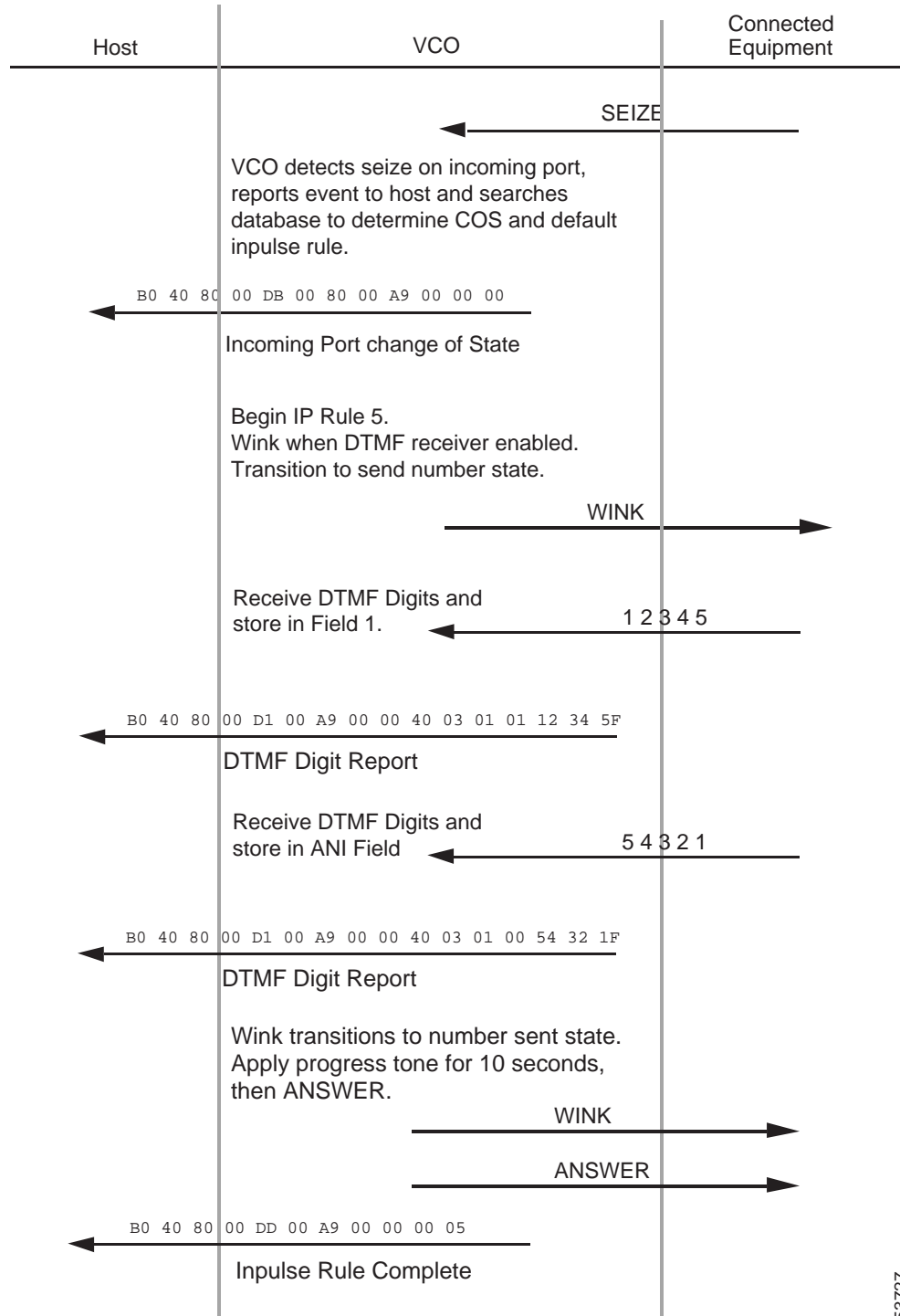This rule is shown below.

Inpulse Rule #5

- REP EACH
- DTMF
- WINK ENAB
- DIGITS   5
- IP FIELD 1
- IP ANI   5
- WINK NOW
- TONE NOW 17
- WAIT TIME 5
- WAIT TIME 5
- ANSWER

Refer to the *Cisco VCO/4K System Administrator's Guide* for more information about specific DTMF inpulse rule tokens.

Figure 4-1 shows the process flow for the incoming call in Example #1.

Figure 4-1   Process Flow for Example #1

Host	VCO	Connected Equipment

SEIZE

VCO detects seize on incoming port,
reports event to host and searches
database to determine COS and default
inpulse rule.

B0 40 80 00 DB 00 80 00 A9 00 00 00

Incoming Port change of State

Begin IP Rule 5.
Wink when DTMF receiver enabled.
Transition to send number state.

WINK

Receive DTMF Digits and
store in Field 1.

1 2 3 4 5

B0 40 80 00 D1 00 A9 00 00 40 03 01 01 12 34 5F

DTMF Digit Report

Receive DTMF Digits and
store in ANI Field

5 4 3 2 1

B0 40 80 00 D1 00 A9 00 00 40 03 01 00 54 32 1F

DTMF Digit Report

Wink transitions to number sent state.
Apply progress tone for 10 seconds,
then ANSWER.

WINK

ANSWER

B0 40 80 00 DD 00 A9 00 00 00 05

Inpulse Rule Complete

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Example #2—Outgoing Call Using Outpulse Rules

Example #2 describes DTMF digit outpulsing on an E1 circuit at port address $00 89. This process involves both host command and outpulse rule processing. The host initiates the outpulsing using the Outgoing Port Control ($69) command, and specifies the outpulse rule to execute. Refer to the *Cisco VCO/4K Standard Programming Reference* **and the** *Cisco VCO/4K Extended Programming Reference* for the command description.

The outpulse rule performs the following actions:

- Seizes out on the E1 trunk 1 using the Answer Supervision Template 1 to detect at port address $00 89 and waits for a dial tone executing the WAIT SUP 1.

- Once the dial tone is detected, which indicates a transition to a Send Number state, DTMF digits are outpulsed.

- After outpulsing is complete, a WAIT SUP W token is used to detect the transition to number sent state.

- The WAIT SUP 3 token uses Answer Supervision Template 3 to detect the progress tone (ringing tone).

- FINAL SUP A (Final Supervision) is Answer.
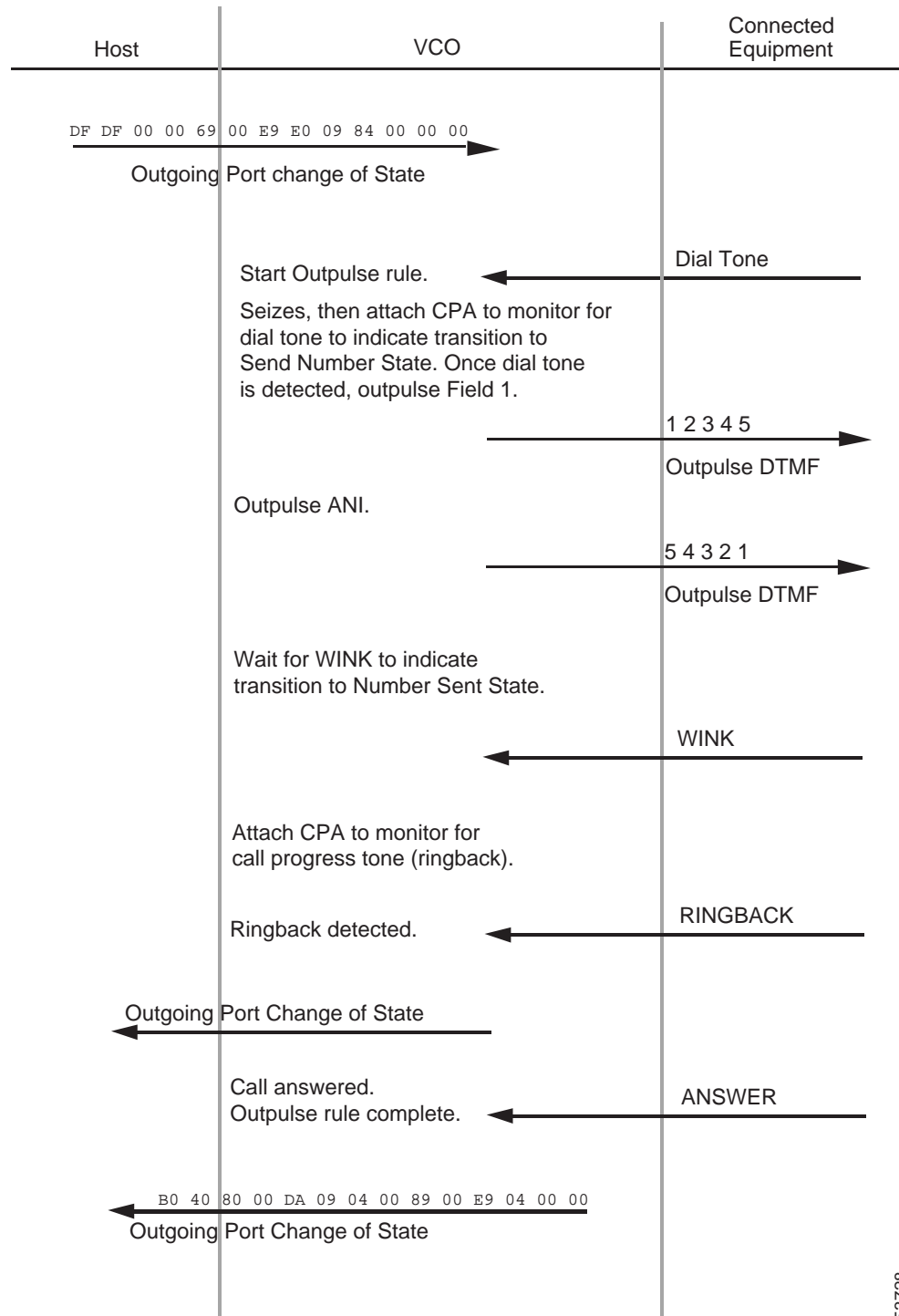
This rule is shown below.

Outpulse Rule #4

- REP END
- SEIZE
- OP DTMF
- WAIT SUP 1
- OP FIELD 1
- OP ANI
- WAIT SUP W
- WAIT SUP 3
- FINAL SUP A

Figure 4-2 shows the process flow for the outgoing call in Example #2.

Figure 4-2   Process Flow for Example #2

Host	VCO	Connected Equipment

DF DF 00 00 69 00 E9 E0 09 84 00 00 00

Outgoing Port change of State

Start Outpulse rule.   ← Dial Tone

Seizes, then attach CPA to monitor for
dial tone to indicate transition to
Send Number State. Once dial tone
is detected, outpulse Field 1.

1 2 3 4 5 →

Outpulse DTMF

Outpulse ANI.

5 4 3 2 1 →

Outpulse DTMF

Wait for WINK to indicate
transition to Number Sent State.

WINK ←

Attach CPA to monitor for
call progress tone (ringback).

Ringback detected.   ← RINGBACK

← Outgoing Port Change of State

Call answered.   ← ANSWER
Outpulse rule complete.

B0 40 80 00 DA 09 04 00 89 00 E9 04 00 00
← Outgoing Port Change of State

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Example #2—Outgoing Call Using Outpulse Rules