



APPENDIX **A**

Feature Tones

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Introduction

This appendix explains special tones the BTS supports for subscriber and operator features. The BTS supports these tones by sending MGCP messages to the gateways.

Tones per Feature

Table A-1 *Feature Tones*

| Feature | Tone | Condition(s) That Initiate Tone ¹ |
|--------------|-----------------------|---|
| AC | ALERTING PATTERN 3 | |
| ACR | No tone | |
| ACRA ACRD | CONFIRMATION TONE | Anonymous call rejection (ACR) was successfully activated or deactivated by subscriber actions. |
| | REORDER TONE | ACR was not successfully activated or deactivated by subscriber actions. |
| AR | ALERTING PATTERN 3 | |
| BLV/OI | REORDER TONE | Normal access is not available. There is a local office problem. The line is momentarily unavailable. No-test access is not available. |
| | BUSY VERIFICATION | CFU is activated on the terminating line. Terminating line is a data-only line or a denied line. |
| | PERMANENT SIGNAL TONE | Line up to receiver off-hook tone. Terminating line receiving a permanent signal announcement. Terminating line is high and wet (battery and ground shorted) or high and dry (off hook for an extended period). |

Table A-1 Feature Tones (continued)

| Feature | Tone | Condition(s) That Initiate Tone ¹ |
|-------------|--------------------|---|
| CW CIDCW | CW TONE | If called party has MDN feature: primary DN matched. If called party is in Centrex system with DACWI: there is no extension for the number dialed. If called party has DRCW feature: calling party is not on the DRCW screening list. ² |
| | CW TYPE 2 | If called party has MDN feature: second DN matched. If called party is in Centrex system with DACWI: extension exists for the number dialed. |
| | CW TYPE 3 | If called party has MDN feature: third DN matched. |
| | CW TYPE 4 | If called party has DRCW feature: calling party is on the DRCW screening list. ² |
| | STUTTER TONE | For Centrex subscriber with CHD feature and currently on an active call: A third party calls in, and the called party hears a call-waiting tone. The called party presses Flash button or switchhook to place the current remote station on hold, and hears the stutter tone. The called party has the following options: <ul style="list-style-type: none"> • Press Flash button or switchhook again to return to the original call. • Dial a designated vertical service code (VSC)—typically *52—to be connected to the new calling party; the first calling party is kept on hold. |
| | TONES OFF | No tones are played for CW or CIDCW. (Tones are turned off under certain special circumstances.) |
| | ALERTING PATTERN 1 | Alerting pattern (ringing) is provided to the calling party and called party, as applicable, for all reconnect, re-ring, callback and recall scenarios. |
| CCW | CONFIRMATION TONE | The subscriber in two-way call cancels call waiting. |
| | DIAL TONE | POTS or Centrex subscriber picks up phone to cancel call waiting. |
| | STUTTER TONE | The subscriber places the other party on hold (CHD) and then activates CCW while call is still on hold. |
| | ALERTING PATTERN 1 | The subscriber goes on hook with the other party still on hold; the BTS provides alerting pattern (ringing). |
| CDP | DIAL TONE | The subscriber is granted access to an outside (public) line, typically after dialing 9. |
| | ALERTING PATTERN 3 | Member of a Centrex group receives an incoming call from the group attendant. |
| CFU | REMINDER RING TONE | Alerting pattern (ringing) is provided on the called station to indicate that a call has been received and automatically forwarded. |

Table A-1 Feature Tones (continued)

| Feature | Tone | Condition(s) That Initiate Tone ¹ |
|--------------------------|--------------------|--|
| CFU-ACT | STUTTER TONE | The subscriber has successfully activated CFU from the handset. |
| | DIAL TONE | The subscriber has dialed the CFU-ACT star code, and the BTS is ready to receive digits for the forward-to DN. 1-second timer elapses following the confirmation tone. |
| | CONFIRMATION TONE | Centrex subscriber successfully activates extension forwarding. If the subscriber has multiple call forwarding (MCF), the subscriber has successfully activated a chain call forwarding scenario POTS subscriber receives ROUTE SELECTED DIALING PLAN. |
| | REORDER TONE | The CFU-ACT attempt was not successful due to <ul style="list-style-type: none"> Attempt to activate CFU when it was already activated Attempt to forward calls to a DN that could not be reached Attempt to forward call from a DN to itself. |
| CFU-DEACT | CONFIRMATION TONE | The subscriber successfully deactivates CFU. |
| | DIAL TONE | 1-second timer elapses following the confirmation tone. |
| | REORDER TONE | The subscriber attempts to deactivate CFU when it was already deactivated |
| CFB-ACT and CFNA-ACT | DIAL TONE | The subscriber has dialed the CFB-ACT or CFNA-ACT star code, and the BTS is ready to receive digits for the forward-to DN. |
| | CONFIRMATION TONE | The subscriber successfully activates CFB or CFNA. |
| | DIAL TONE | 1-second timer elapses following the confirmation tone. |
| CFB-DEACT and CFNA-DEACT | CONFIRMATION TONE | The subscriber has dialed the CFB-DEACT or CFNA-DEACT star code, and CFB or CFNA has been deactivated. |
| | DIAL TONE | Issued after a 1-second timer elapses following the confirmation tone. |
| CHD | STUTTER TONE | For Centrex subscriber (controlling party) currently on an active call: The controlling party places the other party on hold by pressing the Flash button or switchhook, and hears the stutter tone. Controlling party has the following options: <ul style="list-style-type: none"> Press Flash button or switchhook again to return to the original call. Dial a designated vertical service code (VSC)—typically *52—hear the stutter tone again, then dial a third party. The first calling party is kept on hold. |
| | ALERTING PATTERN 1 | Alerting pattern (ringing) is provided to the calling party and called party, as applicable, for all reconnect, re-ring, callback and recall scenarios. |
| CNAM CND | No tone | |

Table A-1 Feature Tones (continued)

| Feature | Tone | Condition(s) That Initiate Tone ¹ |
|------------------------------|--------------------|---|
| CNDB CNAB CIDB CIDS | DIAL TONE | The subscriber has dialed the star code for the identity blocking feature, and the BTS is ready to receive digits for the DN to be called. |
| COS: Account Codes | CONFIRMATION TONE | The BTS prompts the subscriber to enter the account code. |
| COS: Authorization Codes | CONFIRMATION TONE | The BTS prompts the subscriber to enter the authorization code. |
| CPRK | REORDER TONE | The subscriber has dialed the call park (CPRK) access code, but is not subscribed to the CPRK feature. The subscriber has CPRK and has dialed the CPRK access code, but the CPRK attempt was not successful. Note In this case (CPRK attempt was not successful), the reorder tone is played for two seconds, and then the subscriber is reconnected to the original call. |
| | STUTTER TONE | The subscriber presses Flash button or switchhook to park the call. |
| CPRK_RET | REORDER TONE | The subscriber has CPRK and has dialed the CPRK access code, but is unable to retrieve the call. |
| | STUTTER TONE | The subscriber enters the CPRK_RET access code, and the BTS is waiting for the subscriber to dial the extension against which the parked call should be retrieved. |
| CT/TWC | ALERTING PATTERN 1 | The subscriber hangs up with one party on hold. |
| DACWI | ALERTING PATTERN 3 | Distinctive ring pattern. |
| DPN | STUTTER TONE | The subscriber has dialed DPN access code, and DPN access has been granted. |
| | REORDER TONE | Reorder tone is returned to the subscriber who initiated a DPN request when any of the following occurs: <ul style="list-style-type: none"> • The DPN feature has not been assigned to the requesting line. • The dialed extension is not assigned in the business group dialing plan. • The line associated with the dialed extension is not being rung. (Note that “being rung” should not include being given call-waiting treatment.) • The call has been answered, picked up, or abandoned. • The requesting line is not allowed to pick up the particular call because of being assigned the fully restricted terminating or the denied termination feature. |

Table A-1 Feature Tones (continued)

| Feature | Tone | Condition(s) That Initiate Tone ¹ |
|------------------|--------------------|---|
| DPU | STUTTER TONE | The subscriber has dialed DPU access code, and DPU access has been granted. |
| | REORDER TONE | Reorder tone is returned to the subscriber who initiated a DPU request when any of the following occurs: <ul style="list-style-type: none"> The dialed extension is not assigned in the business group dialing plan. The line associated with the dialed extension is not assigned the DPU feature. The line associated with the dialed extension is neither being rung nor involved in a stable two-way call. (Note that “being rung” should not include being given call-waiting treatment. Note also that DPU should not allow a subscriber to barge-in on the controller of a multiway connection, that is, a call-waiting configuration, a call-hold configuration, or a conference call.) The call is abandoned by the caller before the DPU request is recognized or has been picked up by a line without DPU assigned. The requesting line is not allowed to pick up the particular call because of being assigned the fully restricted terminating or the denied termination feature. |
| | CONFIRMATION TONE | Barge-in connection is being processed and connection will occur within one second. Note Confirmation tone is repeated twice. |
| DRCW | ALERTING PATTERN 1 | DN of incoming call is <i>not</i> on the DRCW screening list. |
| | ALERTING PATTERN 6 | DN of incoming call is on the DRCW screening list. |
| | CW TONE | DN of incoming call is <i>not</i> on the DRCW screening list. |
| | CW TYPE 4 | DN of incoming call is on the DRCW screening list. |
| Emergency—911 | ALERTING PATTERN 1 | After a normal two-party call, the subscriber presses the Flash button or hookswitch, dials 911, and then hangs up before the 911 operator answers. |
| MDN | ALERTING PATTERN 1 | Station is on hook and there is an incoming call to primary DN. |
| | ALERTING PATTERN 4 | Station is on hook and there is an incoming call to secondary DN. |
| | ALERTING PATTERN 5 | Station is on hook and there is an incoming call to the third DN. |
| | CW TONE | Station is off hook and there is an incoming call to primary DN. |
| | CW TYPE 2 | Station is off hook and there is an incoming call to secondary DN. |
| | CW TYPE 3 | Station is off hook and there is an incoming call to the third DN. |
| MWI ³ | MWI TONE | The subscriber has MWI service and has a message waiting. |
| MIDCALL | STUTTER TONE | After pressing Flash button or hookswitch and the BTS acknowledges it is as a valid midcall action. |
| | ALERTING PATTERN 1 | The subscriber goes on hook with the other party still on hold; the BTS provides alerting pattern (ringing). |

Table A-1 Feature Tones (continued)

| Feature | Tone | Condition(s) That Initiate Tone ¹ |
|----------------------|--------------|--|
| SC1D-ACT SC2D-ACT | STUTTER TONE | Stutter tone is used once after the subscriber enters the *74 (SC1D activation) or *75 (SC2D activation) to begin the process of collecting the information required to provision one of the speed call slots. After a speed call slot has been successfully provisioned, the subscriber will again receive the stutter tone to signify that the speed call slot was successfully provisioned. |
| VMWI ³ | STUTTER TONE | The subscriber has VMWI and has a message waiting, but the serving MGW does not have a visual indicator. |

1. When more than one condition is listed for a single tone, any one of the conditions can cause the tone to be played.
2. For more information on the screening list, refer to the *Cisco BTS 10200 Softswitch System Description*.
3. MWI = message waiting indicator; VMWI = visual message waiting indicator.

Tone Frequencies and Cadences

Tones are requested by the BTS and delivered to the subscriber or operator by the MGW. Some MGWs can be provisioned to play tone cadences different than the ones described in this table.

Table A-2 Subscriber and Operator Tone Descriptions

| Tone | Frequency (Hz) | Cadence Played by MGW |
|--|------------------------------|--|
| Alerting pattern (ringing) 1 | 440 + 480 | 2 sec on, 4 sec off, repeating |
| Alerting pattern (ringing) 2 | 440 + 480 | 0.8 sec on, 0.4 sec off, 0.8 sec on, 4.0 sec off, repeating |
| Alerting pattern (ringing) 3 | 440 + 480 | 0.4 sec on, 0.2 sec off, 0.4 sec on, 0.2 sec off, 0.8 sec on, 4 seconds off, repeating |
| Alerting pattern (ringing) 4 | 440 + 480 | 0.3 sec on, 0.2 sec off, 1 sec on, 0.2 sec off, 0.3 sec on, 4 sec off, repeating |
| Alerting pattern (ringing) 5 | 440 + 480 | 0.5 sec on once |
| Alerting pattern (ringing) 6 | 440 + 480 | 1 sec on, 3sec off, repeating |
| Busy verification (used for operator BLV ¹) | 440 | 2 sec burst, followed by 0.5 sec burst every 10 sec |
| CW tone | 440 | 0.3 sec on once |
| CW Type 1 | 440 | 0.3 sec on once |
| CW Type 2 | 440 | 0.1 sec on, 0.1 sec off, 2 times |
| CW Type 3 | 440 | 0.1 sec on, 0.1 sec off, 3 times |
| CW Type 4 | 440 | 0.1 sec on, 0.1 sec off, 0.3 sec on, 0.1 sec off, 0.1 sec on |
| Confirmation tone | 350 + 440 | 0.1 sec on, 0.1 sec off, 3 times |
| Dial tone | 350 + 440 | steady on |
| Line busy tone | 480 + 620 | 0.5 sec on, 0.5 sec off, repeating |
| Message waiting indicator tone | 350 + 440 | 10 bursts (0.1 sec on, 0.1 sec off), then steady on |
| Off-hook warning tone (receiver off-hook tone) | 1400 + 2060 + 2450 + 2600 | 0.1 sec on, 0.1 sec off, repeating |

Table A-2 Subscriber and Operator Tone Descriptions (continued)

| Tone | Frequency (Hz) | Cadence Played by MGW |
|---|----------------|--|
| Permanent signal (used for operator BLV ¹) | 480 | Steady on |
| Reminder ring tone (ring splash) | 440 + 480 | 0.5 sec ring |
| Reorder tone | 480 + 620 | 0.25 sec on, 0.25 sec off, repeating |
| Ringback tone (audible ringing) | 440 + 480 | 2 sec on, 4 sec off (repeated) |
| Stutter (recall) dial tone | 350 + 440 | 3 bursts (0.1 sec on, 0.1 sec off), then steady on |

1. BLV = busy line verification

Table A-3 lists the maintenance tones used for continuity testing. See the Telcordia document GR-317-CORE for additional details.

Table A-3 Maintenance Tone Descriptions

| Tone | Frequency (Hz) | Description |
|----------------------------|----------------|---|
| 2010-Hz continuity tone | 2010 | Used for single-tone test under either of the following conditions: <ul style="list-style-type: none"> The circuit is a 4-wire circuit at both the transceiver end and the distant end The circuit is a 2-wire circuit at the transceiver end |
| 1780-Hz continuity tone | 1780 | Used for dual-tone test with a 4-wire circuit at the transceiver end and a 2-wire circuit at the distant end |

All tones are based on information in the following:

- Telcordia document *GR-506-CORE, Signaling for Analog Interfaces*
- Telcordia document *TR-NWT-506, Issue 3, Signaling*
- Telcordia document *GR-590-CORE, Call Pickup Features (FSD 01-02-2800)*
- Telcordia document *GR-317-CORE, Switching System Generic Requirements for Call Control Using the Integrated Services Digital Network User Part (ISDNUP)*
- Telcordia document *GR-219-CORE, Distinctive Ringing/Call Waiting (FSD 01-01-1110)*.
- IETF document *RFC 2705, Media Gateway Control Protocol (MGCP) Version 1.0*

