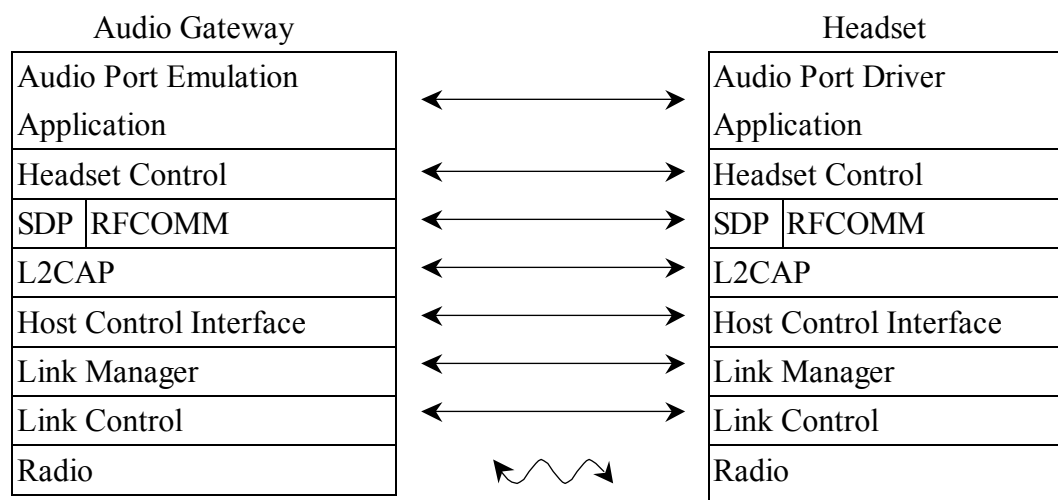BTH-2102 BT-EARLINE

The headset profile defines the facilities required to make and receive hands-free voice calls from a headset to a cellular phone handset. Of course, it can also be used to transfer voice calls between other Bluetooth devices. Bluetooth headsets can be driven via buttons on the headset, but voice-activated command and control provides a more elegant interface, and should be popular for consumer headsets. The specification only assumes that there is some way for the user to initiate an action, and doesn't specify how that will be done.

 The Bluetooth headset profile defines two roles:

>>Audio Gataway(AG):This is the device that is the gateway of the audio, both for input and output(e.g., cellular phone, personal computer).

>>Headset(HS):This is the device acting as the remote audio input and output mechanism.

Figure 1. shows the protocol stack used by the Bluetooth headset profile. The audio port emulation layer is the entity emulating the audio port. This layer could reside on a cellular phone or PC. The audio driver is the driver software in the headset.

Audio Gateway	Headset
Audio Port Emulation Application	Audio Port Driver Application
Headset Control	Headset Control
SDP | RFCOMM	SDP | RFCOMM
L2CAP	L2CAP
Host Control Interface	Host Control Interface
Link Manager	Link Manager
Link Control	Link Control
Radio	Radio

Establishing a Call to a Bluetooth Headset

Figure 2 shows how an Audio Gateway establishes a call to Bluetooth headset. Usually, the Audio Gateway will initiate the connection to the headset because it has received an incoming call. For example, the Audio Gateway could be in a cellular phone handset. When the phone receives a phone call, it activates a Bluetooth connection and passes the call to headset. It is possible the some internal event could also cause the gateway to call the headset: for example, an application running on a PDA might send an alarm call with a pre-recorded message, warning the headset's wearer of an appointment.

The first step of the Audio Gateway establishing a call is to set up an ACL connection. This could be done by paging, or it could be done by unparking if the headset were previously parked for power saving. A parked device is already synchronised to its Master's clock, so unparking would be faster than paging. For more details on parking and unparking.

Once the ACL link is established, it can be used to send a ring tone. The ring tone is sent using an AT RING command as defined in ITU-T Recommendations V.250.

The example in figure 2 uses a ting signal on the ACL link to signal a call. Alternatively, the SCO link could be set up earlier, and the ring signal sent on the SCO link, as shown in figure 3.
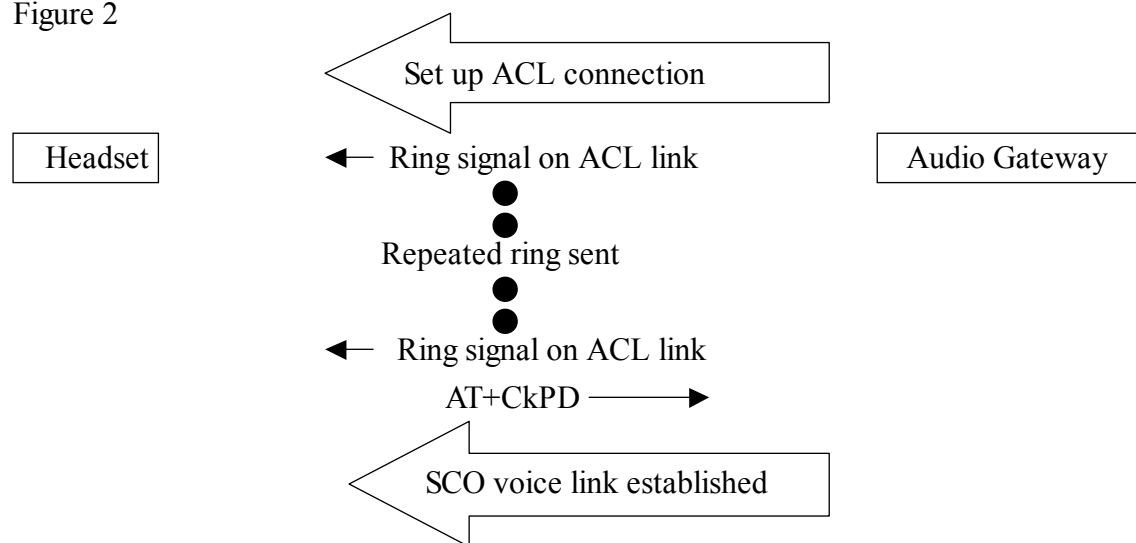
Figure 2

| Headset | ← Set up ACL connection | Audio Gateway |

← Ring signal on ACL link
●
●
●
Repeated ring sent
●
●
●
← Ring signal on ACL link
AT+CkPD ⟶
← SCO voice link established

Figure 3.

| Headset | ← Set up ACL
← Set up SCO connection | Audio Gateway |

← Ring tone on SCO connection
●
●
Repeated rings sent
●
●
← Ring tone on SCO link
AT+CkPD ⟶
← Voice connected to SCO link