

5 RF Link Operation

The radio frequency (RF) link is a full-duplex communication path between the AT&T1430 base and handset. It is used to transfer both audio (voice) and data between Base and Handset. There are a total of 30 RF channels available for communication. Only one channel may be selected as the active channel at any instant, though users can select to a different active channel when there is perceived interference on the current channel.

5.1 RF Link Data

Data transmitted over the RF link are operational commands and CID data. When the AT&T1430 is in the PHONE mode, both audio and data will be transmitted over the RF link. To minimise any perceptible impact on audio quality when data is interspersed within the voice transmission, receiver audio at the handset will be muted within twenty (20) ms of start of data transfer. Furthermore, normal data transfers (except CID data) will be limited to no more than 150 ms in duration.

When the AT&T1430 is in the STANDBY mode, the base and handset will listen for data transmission from the other relating to the initiation of the PHONE, RINGER, PROGRAM or PAGE mode. The handset is in the battery-conservation mode of operation, in which the on-board electronics is essentially “asleep” but will wake up periodically to check for incoming data transmitted from the base. The handset will detect commands sent from the base within 1 second. The first ring will be handled such that the probability of missing it is minimised.

5.2 Security Code

All data communication over the RF link will include a security code as required by FCC Part 15. When a data packet is received over the RF link, the security code contained in the packet will be verified before any data is processed. This prevents the handset from receiving commands from another base unit and vice-versa.

The handset and base units will use an identical, **20-bit** security code. The security code is stored in the non-volatile memory in the base and handset unit and factory defaulted in production. During Production, all units will be passed through a test jig in pair. The test jig will test some parameters of the unit pair and write the security code into the memory once all test parameters passed. The test jig will count on the security code (Totally 1048576 – 20 bit buffer and reset after the buffer full) and write to the unit pair.

5.3 RF Channel Selection

In order for the handset and base unit to communicate over the RF link, the selection of the active channel must be synchronised between the two units. An active channel is initially selected during the AT&T1430 initialisation process. If the RF link subsequently degrades during operation, recovery involves the selection of a new communication channel that can be manually (user) initiated.

5.3.1 Channel Resynchronization

If the active channel between the Base and the Handset becomes out of synchronisation so that further communication between them cannot be established, re-cradling the Handset will re-synchronise the channel selection. It is accomplished by having the Handset transmitting the sync. code on its current channel and Base will monitor each channel sequentially until it receives the Handset’s sync. code. Upon successful reception of this signal, the Base then sends an ACK. command to Handset to confirm the current channel can communicate. BS stores the current channel as the “last channel”. Thus BS and HS resynchronisation is complete.