CAUTION: If RC50-C is active in a data link and you enable voice mode or press PTT, wait for up to 25 sec before continuing with the digital voice transmission. The receiving station needs this time to regain digital voice synchronisation.

NOTE: When transmitting clear or encrypted digital voice, listen for the Tx ready beep after you have released PTT before you *hold* PTT again.

CAUTION: When transmitting with the AES256 DV Encryptor, you should *hold* PTT, wait 2 sec, speak, wait 2 sec, then release PTT.

If you have the Advanced Digital or AES256 DV encryptor option installed, the transceiver will also go secure/clear when **8**|**SEC** is pressed.

Figure 17: Channel screen showing secure/clear status for all encrypted digital voice

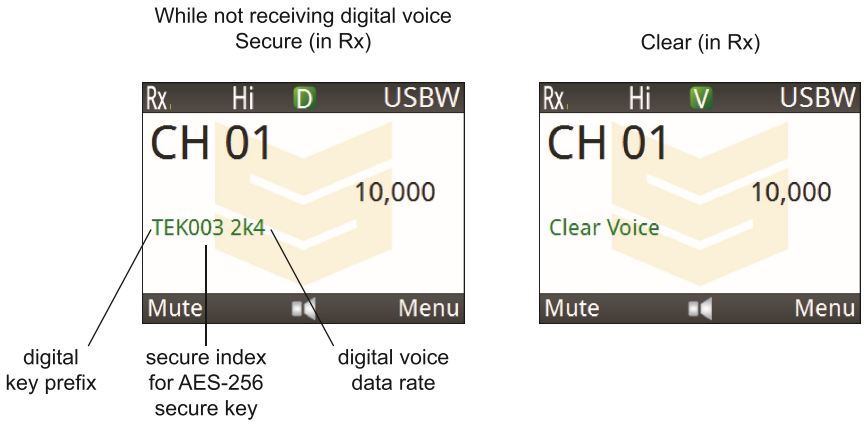
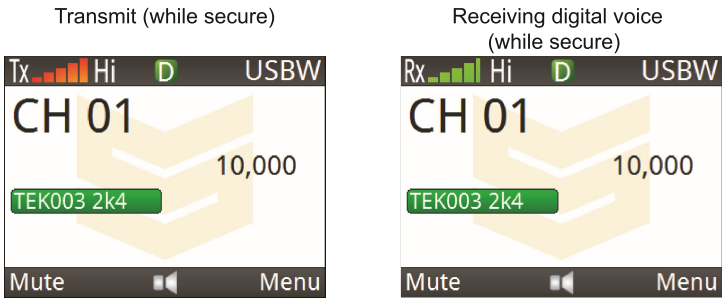


Figure 18: Channel screen showing transmit/receive status for all encrypted digital voice



Selecting the digital voice rate

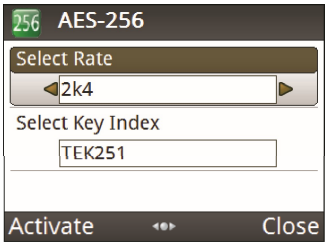
The digital voice rate sets the speed with which digital voice transmissions are sent. The digital voice rate is shown in status area 1 of the screen. Use the available digital voice rate in the first instance, then if good HF propagation conditions exist, a higher rate may be selected. The rates from which you can select depend on the options that you have installed.

NOTE: Receiving DV stations, which have both MELPe and TWELP vocoders available by default, automatically switch to the appropriate rate and vocoder type when a signal is detected.

NOTE: If you change the digital voice rate frequently, you should consider assigning the **Next Digital Voice Rate** macro from **Unassigned** to a hot key. For detailed information on editing a macro, please see the Reference Manual (Codan part number 15-04188-EN Issue 1).

To select a different digital voice rate:

- Do *one* of the following:
  - From the main menu, select (**General**), then (**Secure**).
  - *Hold* **8**|**SEC**.



- Press or to select the digital voice rate that you want to use.
- Press (**OK**).

Related links:

Digital voice rate on page 60

Selecting digital voice mute

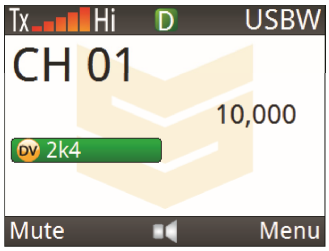
NOTE: Digital voice mute is available when the Standard Digital, the Advanced Digital or the AES256 DV Encryptor is active, and scanning is switched off or paused.

NOTE: If you want to suppress any noise burst on a connected or built-in loudspeaker during an operational event (for example, changing a channel or mode) select the **Muted unless digital voice** check box in **Settings** > **Security** > **Digital Voice Options**.

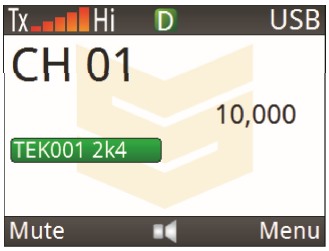
To select digital voice mute:

- Switch off scanning.
- Press **8**|**SEC**, then press **7**|**V/S** until **D** is shown in the centre of the status bar on the channel screen.

Digital voice without encryption (in Tx)



All encrypted digital voice (in Tx)



Related links:

Digital voice mute on page 62

Using GPS

Saving your current GPS position as a waypoint

To save your current GPS position as a waypoint:

- Do *one* of the following:
  - Press **9**|GPS.
  - From the main menu, select (**General**), then (**GPS**).
- Press (**Save**).
- Enter the name that you want to use for the waypoint.
- Press (**Options**), scroll to **Save**, then press (**Select**) to save the waypoint.

Selecting a waypoint

To select a waypoint:

- Do *one* of the following:
  - Press **9**|GPS.
  - From the main menu, select (**General**), then (**GPS**).
- Press ▶ to move to the **Distance and Bearing** tab.
- Press (**Waypoint**).
- Press ◀ or ▶ to select the **Waypoint** tab.
- Press ▼ to move to the waypoint that you want to set.
- Press (**Options**), scroll to **Set**, then press (**Select**).

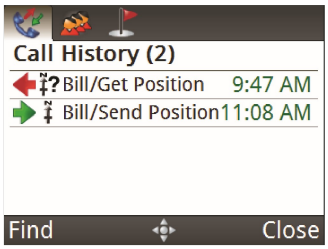
Updating a waypoint from the Call History

You can update a waypoint using information from a Get Position call or a received Send Position call in the Call History. If you do not want to use the waypoint information immediately, you may save it. Waypoints that are saved via the **Distance and Bearing** tab are automatically added to the **Waypoints** tab at the same location, and to the list of waypoints in **User Data** > **Waypoints**.

To update a waypoint from the Call History:

- Do *one* of the following:
  - Press **9**|GPS.
  - From the main menu, select (**General**), then (**GPS**).
- Press ▶ to move to the **Distance and Bearing** tab.
- Press (**Waypoint**), then press ◀ or ▶ to select the **Call History** tab.

  The information available is filtered on Get Position calls that you have sent and Send Position and Emergency calls that you have received.



- Press ▲ or ▼ to scroll to the call containing the GPS information that you want to use for the waypoint.
- If you want to set the GPS information as the current waypoint, press (**Options**), scroll to **Set**, then press (**Select**).

- If you want to save the GPS information as a waypoint:
  - Press (**Options**), scroll to **Save**, then press (**Select**).
  - Enter the name that you want to use for the waypoint.

    NOTE: If required, you can change the GPS information.
  - Press (**Options**), scroll to **Save**, then press (**Select**).
- Press (**Close**).

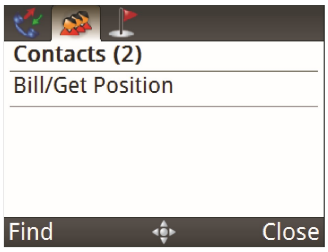
Updating a waypoint from a contact

You can update a waypoint using information gathered from a Get Position call for a contact.

To update a waypoint from a contact:

- Do *one* of the following:
  - Press **9**|GPS.
  - From the main menu, select (**General**), then (**GPS**).
- Press ▶ to move to the **Distance and Bearing** tab.
- Press (**Waypoint**), then press ◀ or ▶ to select the **Contacts** tab.

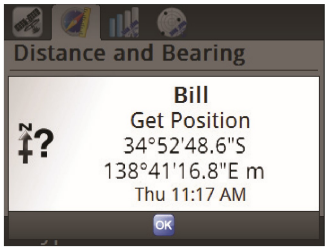
  The information available is filtered on Get Position calls to contacts that have been set up in **User Data** > **Contacts**.



- Press ▲ or ▼ to scroll to the contact whose GPS information you want to use for the waypoint.
- Press ⌐ (**Options**), scroll to **Call**, then press ⌐ (**Select**).

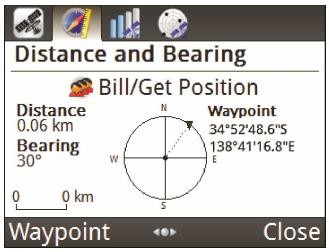
  If prompted, select a channel, then press **OK**.

  The GPS information appears in an incoming call pop-up.



- Press **OK**.

  The waypoint information is updated, and the source of the GPS information is shown at the top of the screen.



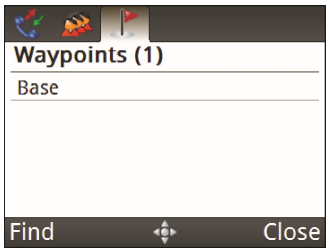
- Press ▬ (**Close**).

Adding a waypoint

You can create a waypoint by entering GPS information and providing it with a meaningful name. The waypoint can be saved for future use.

To add a waypoint:

- Do *one* of the following:
  - Press **9**|GPS.
  - From the main menu, select (**General**), then (**GPS**).
- Press ▶ to move to the **Distance and Bearing** tab.
- Press ▬ (**Waypoint**), then press ◀ or ▶ to select the **Waypoints** tab.

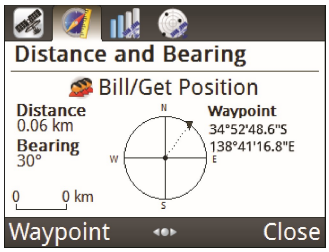


- ❑ Do *one* of the following:
  - If there are no waypoints programmed in the transceiver, press (**Add**).
  - If there are some existing waypoints programmed in the transceiver, scroll to the waypoint after which you want to add the new waypoint, press (**Options**), scroll to **Add**, then press (**Select**).
- ❑ Enter the name that you want to use for the waypoint.
- ❑ Press ▼ to move to the **Position** entry, then press ▶.

NOTE: The format of the GPS information is set in **Settings** > **GPS** > **GPS Format Options**.

- ❑ Do *one* of the following:
  - To use your current location, press (**Options**), scroll to **Use GPS**, then press (**Select**).
  - To enter a new location, press ▲ or ▼ to scroll to the value or use the numeric keys to enter the value that you want to set, then press ▶ to move to the next field.
- ❑ Press (**Options**), scroll to **Save**, then press (**Select**) to save the GPS information.
- ❑ Press (**Options**), scroll to **Save**, then press (**Select**) to save the waypoint.
- ❑ Press (**Close**).

The waypoint information is updated, and the source of the GPS information is shown at the top of the screen.



Finding a waypoint

To find a waypoint:

- Do *one* of the following:
  - Press **9**|GPS.
  - From the main menu, select (**General**), then (**GPS**).
- Press ▶ to move to the **Distance and Bearing** tab.
- Press (**Waypoint**).
- Press ◀ or ▶ to select the tab in which you want to search.
- Press (**Find**).
- Enter the letter or number on which you want to search.

  Any entries or values that contain the character you have entered are shown in a list, with the character highlighted.
- Enter more characters to refine your search.
- Press ▲ or ▼ to scroll to the waypoint, then press (**OK**) to select it.

Viewing the details of a waypoint

To view the details of a waypoint:

- Do *one* of the following:
  - Press **9**|GPS.
  - From the main menu, select (**General**), then (**GPS**).
- Press ▶ to move to the **Distance and Bearing** tab.
- Press (**Waypoint**).
- Press ◀ or ▶ to select the **Call History**, **Contacts** or **Waypoints** tab.
- Press ▲ or ▼ to scroll to the waypoint that you want to view.

  The call details, call information, or waypoint position is shown respectively.
- Press (**Options**), scroll to **Details**, then press (**Select**).

Viewing GPS information

To view GPS information:

- Do *one* of the following:
  - Press **9**|GPS.
  - From the main menu, select (**General**), then (**GPS**).
- Press ▶ to move to the tab that you want to view.

  NOTE: The Sentry-H transceiver uses two Global Navigation Satellite Systems (GNSS) to calculate position information with improved accuracy and reduced time for signal acquisition.

Table 5: GPS information

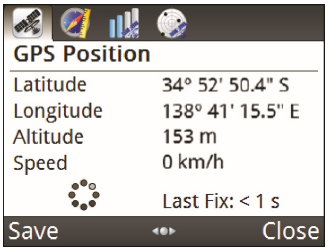
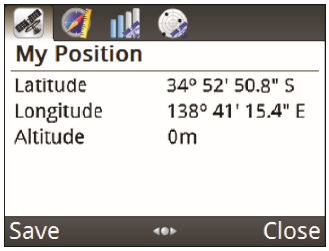
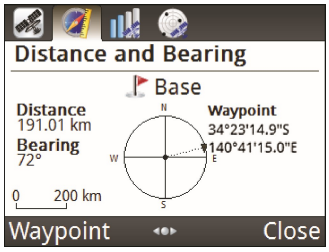
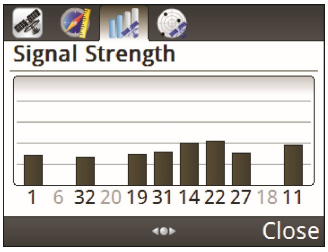
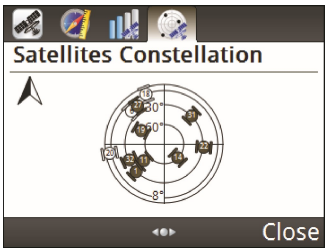
Tab	Description
 	Shows the latitude and longitude readings from a GPS receiver, or from **Settings** > **GPS** > **My Position**. Altitude and speed readings are hidden by default. The spinning circle shows that the GPS receiver is active, and the Last Fix reading shows the time lapse from the last receipt of valid GPS information.
	Shows the distance and bearing from your location to a selected waypoint.

Table 5: GPS information (cont.)

Tab	Description
	Shows the signal strength from each visible satellite. The number represents a particular satellite, and its location is shown on the **Satellites Constellation** tab. Satellites with a blue signal strength provide information for the GPS location. A maximum of 11 satellites are displayed. If there are more than 11 satellites being tracked, then only the first 11 satellites in decreasing order of their signal strength are chosen and displayed.
	Shows a map of visible satellites. The satellites that are coloured blue provide the strongest signals and this information is used to establish the position of the receiver. The other satellites are visible, but the signal is weaker and the information is ignored. A maximum of 11 satellites are displayed. If there are more than 11 satellites being tracked, then only the first 11 satellites in decreasing order of their signal strength are chosen and displayed.

- Press ▬ (**Close**).

Data options

2.4 kbit/s Data Modem

This internal data modem provides an extremely robust, field-proven HF waveform that is interoperable with Codan's proprietary 3012 protocol and 3212 HF Data Modem (operating in compatibility mode).

NOTE: When a data application is connected, an icon appears in the status bar of the channel screen ().

This modem can be used with ALE and Selcall call systems. Voice links may be established first, then a data exchange may be performed.

The modem is controlled by the connected computer using the UUPlus©/Codan Chat© HF data applications. Email is sent and received via your chosen email client, for example Microsoft® Office Outlook®. For information on using UUPlus©/Codan Chat©, please see the documentation provided with the product.

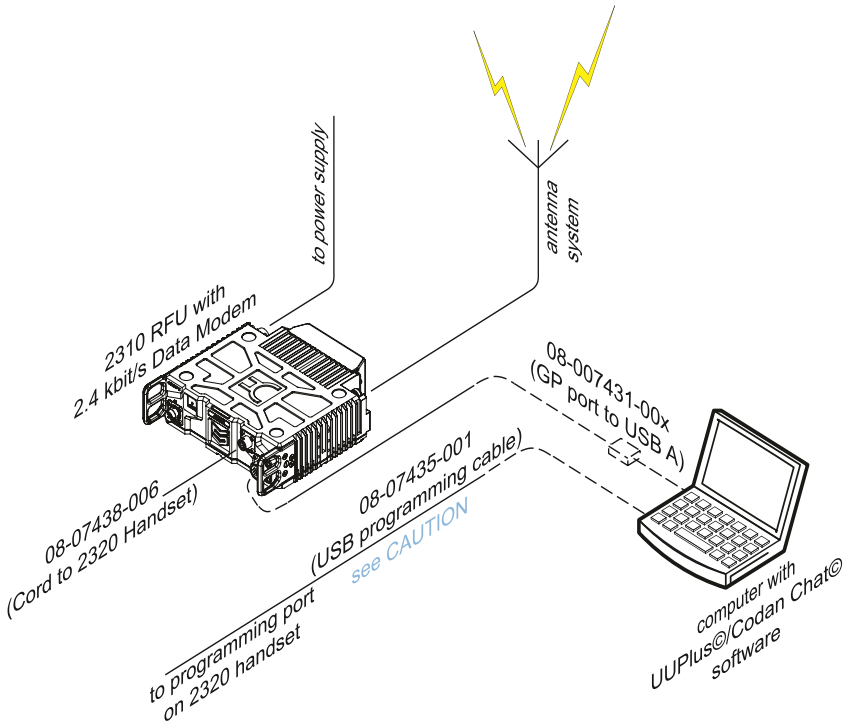
Typical 2.4 kbit/s data station

A typical data station comprises of:

- a Sentry-H transceiver with the 2.4 kbit/s Data Modem
- a suitable 12 V or 24 V DC power supply
- an antenna system
- a PC running UUPlus©/Codan Chat© or suitable terminal program
- appropriate connecting cables

NOTE: Software that operates on standard telephone modems should operate over HF via the AT commands.

Figure 19: Sentry-H transceiver with 2.4 kbit/s Data Modem option and computer



CAUTION: If VCOM is used over a USB–USB connection between the Sentry-H transceiver with the internal data modem interface and the computer running the UUPlus/Codan Chat applications, the **2.4 kbit/s Modem Interface** peripheral device must not be selected on the RFU GP port.

CAUTION: The USB–USB connection may be used with 2320 Handset in stations that are not exposed to excessive local HF interference.

CAUTION: Data transmitted via a VCOM session over a USB–USB connection may be affected by your computer's power-saving activities. Either disable the power-saving mode while data is being transmitted, or verify that the data has been sent correctly when the computer wakes from power-saving mode.

NOTE: For information on setting up the data station, please see the Reference Manual (Codan part number 15-04188-EN Issue 1).

Related links:

Using VCOM services on page 117

Using the 2.4 kbit/s data station

Making a data call

Data calls are made in the background when you send an email via UUPlus©/Codan Chat© (or similar), or when transferring a file between terminal sessions.

NOTE: For information on sending an email via UUPlus©/Codan Chat©, please see the documentation provided with the software.

To make a data call:

- Compose your email in UUPlus©/Codan Chat© (or similar).
- Do *one* of the following:
  - If you want to make the call using a specific channel, switch off scanning on the transceiver's control point, then scroll to the channel that you want to use for the call.
  - If you want to make the call using an ALE/CALM HF network, switch on scanning on the transceiver's control point.

NOTE: If a channel is common to both HF networks, the type of HF network used for the call is determined by the scanning status when the call is made.

- In UUPlus©/Codan Chat©, press **Send**.

NOTE: If you are already in an existing Selcall or ALE/CALM link, you will be asked to confirm if you want to override the lock on the system from the existing link.

Viewing the performance of the 2.4 kbit/s Data Modem

You can set one of the status areas to show the link status and throughput of the internal data modem.

To view the performance of the modem:

- Go to the channel screen.
- Use the information in Table 6 to determine the status of the 2.4 kbit/s Data Modem.

Table 6: Status of the 2.4 kbit/s Data Modem

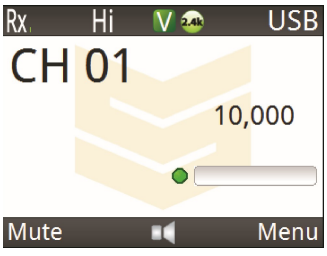
Colour of LED	State	Description
Green	Solid	The modem is connected either via USB to Serial, or VCOM, and is communicating with the transceiver. 

Table 6: Status of the 2.4 kbit/s Data Modem (cont.)

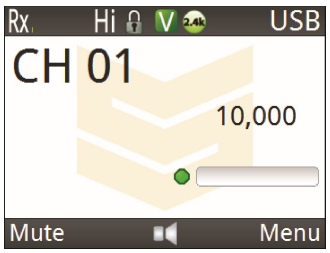
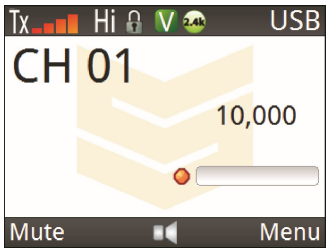
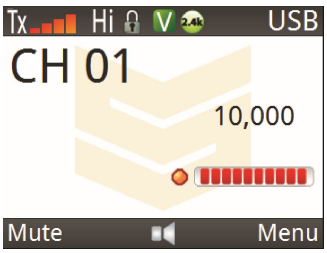
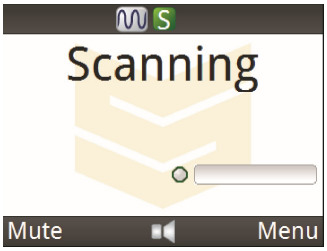
Colour of LED	State	Description
Green	Flashing	The station is establishing a link, or in a link, with another station. This station is the receiver of the link. 
Red	Flashing	The station is establishing a link, or in a link, with another station. This station is the initiator of the link. 

Table 6: Status of the 2.4 kbit/s Data Modem (cont.)

Colour of LED	State	Description
Red (bar)	Variable length	Red bar is indicative of the data throughput rate for the link. 
Grey	Solid	The modem is enabled in the firmware, but a computer is not connected and/or not communicating with it.  Check that VCOM is running as a background task, the cable is connected properly, or the correct COM port is assigned.

CAUTION: Data transmitted via a VCOM session over a USB–USB connection may be affected by your computer's power-saving activities. Either disable the power-saving mode while data is being transmitted, or verify that the data has been sent correctly when the computer wakes from power-saving mode.

MIL/STANAG 2G Data

NOTE: MIL/STANAG 2G Data is enabled when you have the Standard Digital or Advanced Digital option installed.

NOTE: MIL/STANAG 2G Data is implemented by the RM50 module.

MIL/STANAG 2G Data provides data communications. It may also provide optional AES-256 digital encryption. It must be used in conjunction with the RC50-C HF Email software. The RM50 module is capable of high-speed data transfer at speeds of up to 9600 bit/s using STANAG 4539 waveforms and up to 19200 bit/s when ISB option is enabled. This modem also supports MIL-STD-188-110A/B (including Appendix C and Appendix F), STANAG 4285, STANAG 4529, and STANAG 4415 waveforms.

NOTE: When a data application is connected, an icon appears in the status bar of the channel screen ().

NOTE: The RM50 module can be upgraded from TPS System Programmer or from a USB stick. See *Upgrading the transceiver via a USB stick* on page 113 for more information.

CAUTION: A permit from the Australian government is required if you want to upgrade the RM50 module with an export controlled version firmware package, which enables AES-256 Encryption and Low Rate DV capabilities.

Related links:

Using encryption on page 89

Typical MIL/STANAG 2G data station

A typical MIL/STANAG 2G data station comprises of:

- Sentry-H transceiver with Standard Digital or Advanced Digital option
- an antenna system
- an appropriate 12 V or 24 V DC power supply
- a computer with RC50-C HF Email software
- appropriate connecting cables

Figure 20: Sentry-H transceiver with MIL/STANAG 2G Data via serial cable

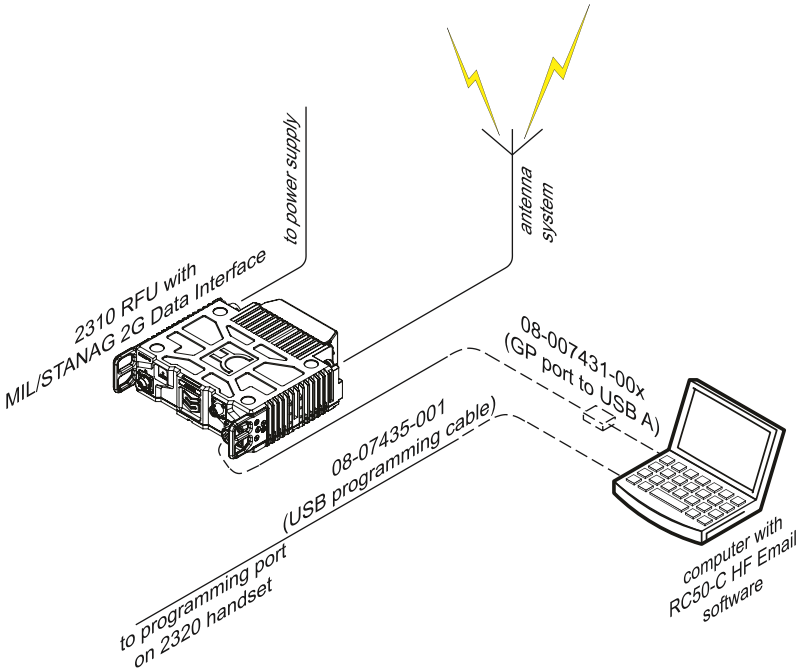
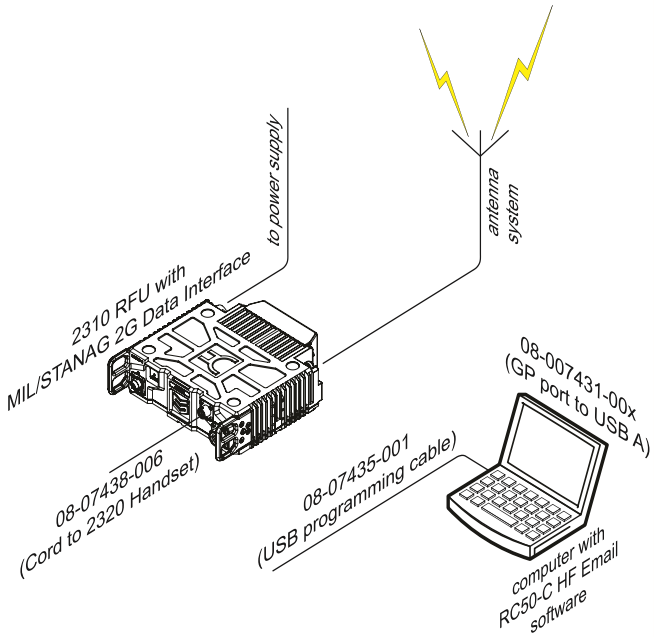


Figure 21: Sentry-H transceiver with MIL/STANAG 2G Data via VCOM over USB cable



CAUTION: When VCOM is used over the USB cable (08-07435-001), the **RFU GP Port MIL/STANAG 2G Data** peripheral devices must not be selected on the RFU GP port.

CAUTION: Data transmitted via a VCOM session over a USB–USB connection may be affected by your computer's power-saving activities. Either disable the power-saving mode while data is being transmitted, or verify that the data has been sent correctly when the computer wakes from power-saving mode.

Related links:

Using VCOM services on page 117

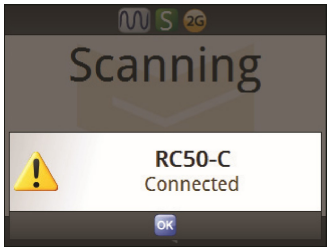
Sending email via RC50-C

An email message is sent via your email client to the RC50-C HF Email software, which passes it to the RM50 module. The module passes the message to the transceiver, which transmits it over the air.

To send an email message:

- Launch the RC50-C HF Email software, then click **Go Online**.

  The transceiver responds with a beep.

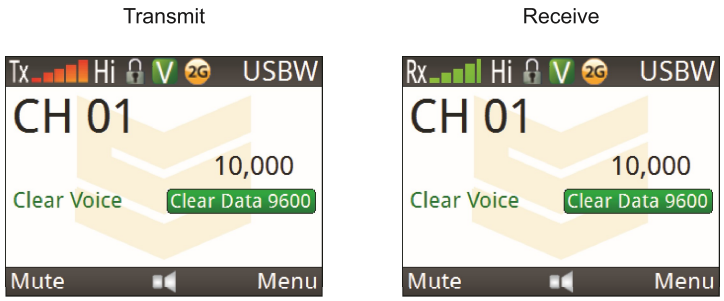


- Compose your email message in your email client software, for example Microsoft Outlook, then send it to the recipient.

  When AES-256 is not enabled or activated and a signal is transferred between the data modems across the link established by the transceivers, the current transmit or receive data rate is indicated on the right-hand side of the **Clear Data** indicator.

  While the message is being sent between the transceivers, activity is reported on the screen of the control point.

Figure 22: Transmit and receive screens during a MIL/STANAG 2G data call



NOTE: An AES-256 data encryption upgrade is available for use with the MIL/STANAG 2G Data interface.

NOTE: If you go offline in RC50-C, the modem may disconnect for 15 sec, then reconnect.

Related links:

Using encryption on page 89