

Land Mobile HF

What is the Land Mobile service?

- Fixed frequencies, either shared with other Land Mobile users or exclusive use
- RFDS require an Outpost Unassigned license, no exam necessary, \$38/year (VZP720)
- Other service providers pay the license fee to ACMA and then issue their subscribers an “Authority to Transmit” for their allocations.
- There is not a blanket license for every land mobile frequency

Who uses it?

- RFDS, Royal Flying Doctor Service
- VKS737, Bush Telegraph, HF OZ, HF Club (Remote travellers)
- Commercial aircraft
- Defence
- Emergency services
 - Police
 - EMQ
 - SES
 - RECOM

Services available

- Voice
- RFDS emergency call
- Selcall
- Test call
- Messages
- GPS
- Diagnostics/Status
- Telcall

Equipment types

- Crystal locked (e.g. 6924, 7727)
- PLL, fixed channels (e.g. 8525, 8528)
- Fully synthesised with DSP noise reduction (e.g. NGT)
- Backpack



Amateur vs Land Mobile radios

- Amateur radios are not permitted to use Land Mobile allocations, unless it is an emergency
- Land Mobiles have minimum controls so that untrained users can operate with minimal or no training
- Land Mobiles must meet AS/NZS 4770:2000 before being Type Approved by ACMA, essentially the radio must not be programmable by the end user (front panel)

Manufacturers

- Several Australian HF land mobile manufacturers, Barrett (SB550, SB2000), QMac (QF50) also manufactured in Oz. Treager (Tracker Scout) no longer manufactured
- Icom (IC-F7000), Kenwood (TK90), Vertex (VX1700), Harris, Thales and Motorola (Micom) also produce type approved radios for the Land Mobile service
- Codan has been in business since 1956 initially competing against Treager, considered to be one of the leading developers of HF Radio in the world

Codan NGT

- Easitalk
- GPS
- High speed scanning
- Compact handset/microphone
- Mobile phone “like”
- Auto-tuner support for fixed and 9350 mobile antenna



Terminology

- Networks
- Address Book
- Self ID
- CALM (ALE)

Codan High Speed Modem

- Variable baud rate (9600 to 75 baud, depending on conditions)
- Powered from the radio
- TCP/IP or Serial interface

Stanag Communications Stack

- **STANAG** is the **NATO** abbreviation for **Standardisation Agreement**
- **STANAG 5066**: The adoption of a Profile for HF Data Communications, supporting **Selective Repeat ARQ** error control, HF E-Mail and IP-over-HF operation
- **Automatic repeat request (ARQ)** (or automatic repeat-query) is an **error-control** method for **data transmission** which uses **acknowledgements** and **timeouts** to achieve reliable data transmission over an unreliable service. An acknowledgement is a message sent by the receiver to the transmitter to indicate that it has correctly received a data frame or packet. A timeout is a reasonable point in time after the sender sends the frame/packet; if the sender does not receive an acknowledgement before the timeout, it usually **re-transmits** the frame/packet until it receives an acknowledgement or exceeds a predefined number of re-transmissions.

HF Express

- Chat
- File exchange
- Email provided by a separate application called UUPlus

Why data over HF?

- Secure communications between trusted stations
- Exchange sensitive information
- Police will require “secure” circuit for Emcomm

EMQ/SES usage



- Each SES base is supposed to have an operating NGT
- Proposed that SES groups also have a Manpack
- Crosspatch, using UHF handhelds into HF for long distance communications
- For the club, grant money is being sought to buy a NGT for the radio room and caravan (with modems and crosspatch), plus a Manpack for the caravan