SVOM VHF TELEMETRY PACKET FORMAT

The VHF telemetry structure and transmission format is based on the CCSDS standard for space telemetry and follows this format. Each data packet consists of a packet header of 6 bytes followed by an 88-byte packet data field which is further divided into 4 bytes of packet time, 78 bytes data and 2 bytes CRC checksum. The data packet is then wrapped in a frame, which adds a frame header of 6 bytes for a total frame length of 100 bytes.

To ensure data integrity, a Reed-Solomon encoding is then performed on this frame, which adds 32 bytes of parity data for the 100-byte message block (constituting a reduced 132,100 implementation of the 255,223 CCSDS RS specification). Figure 10 shows a summary of the hierarchical structure of the telemetry packet and frame.

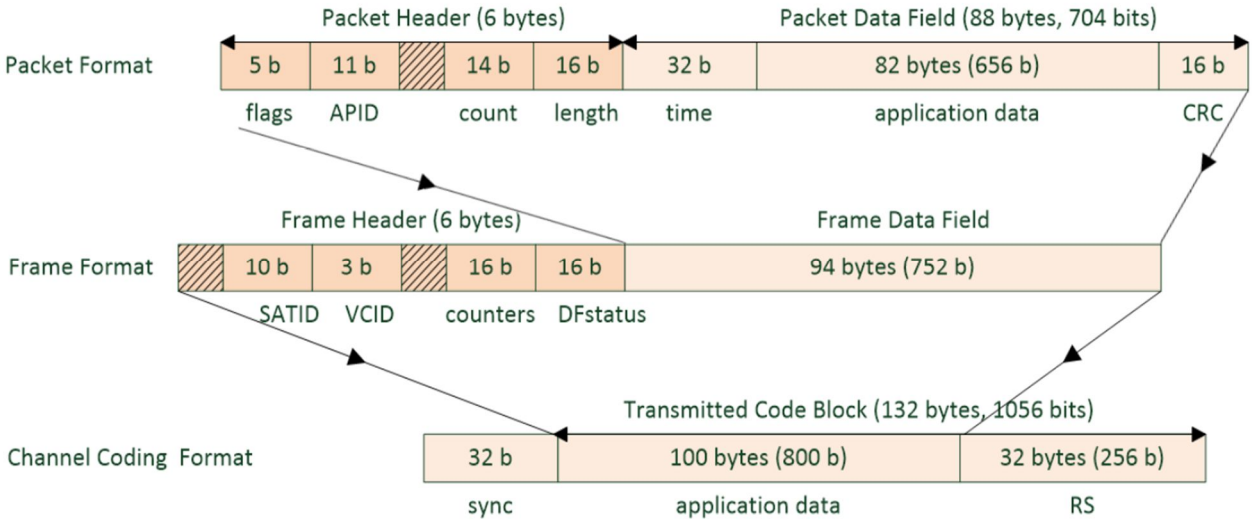
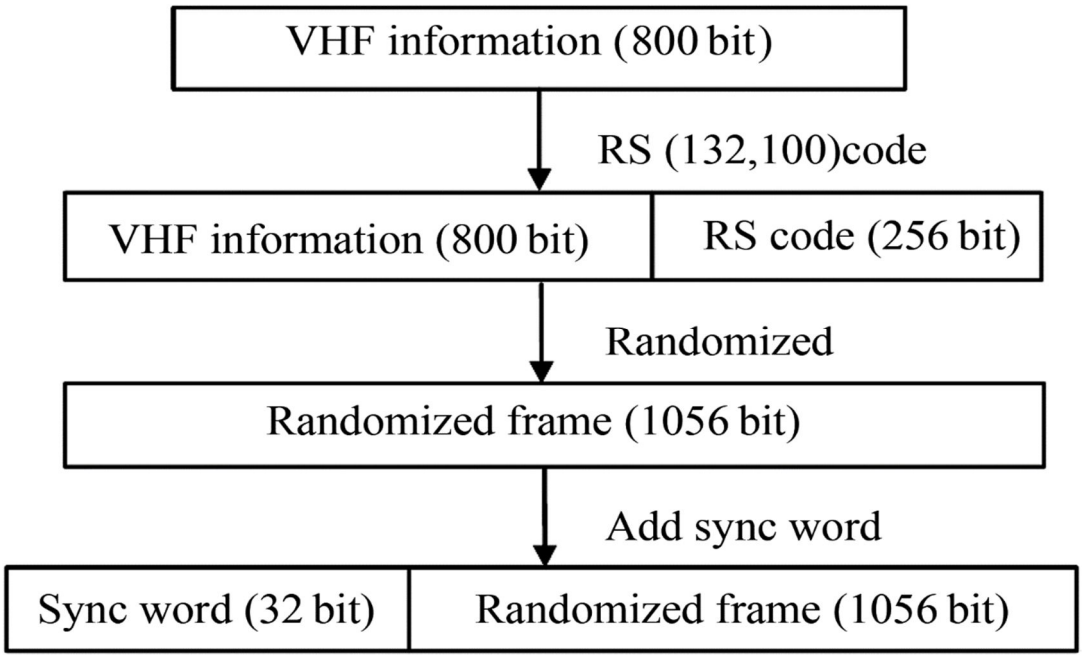
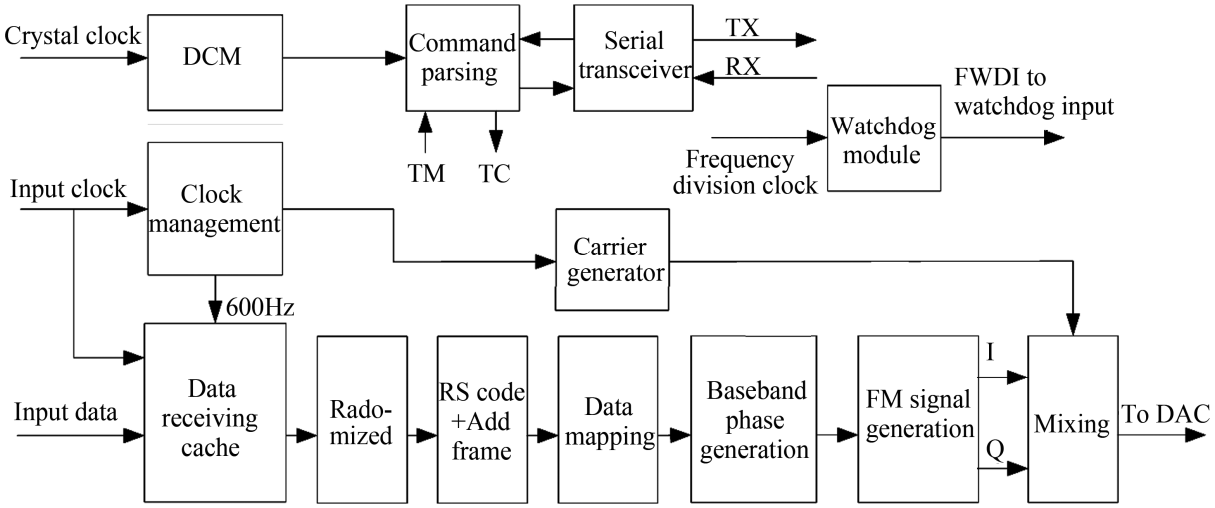
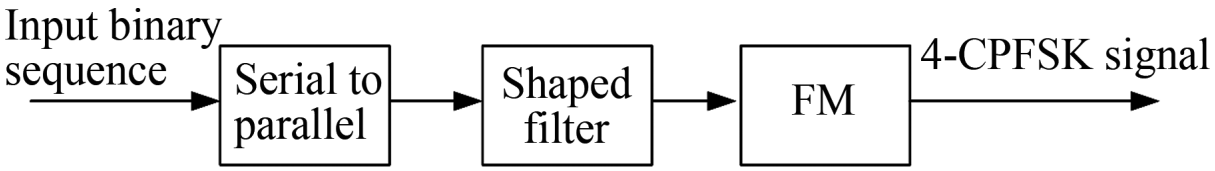
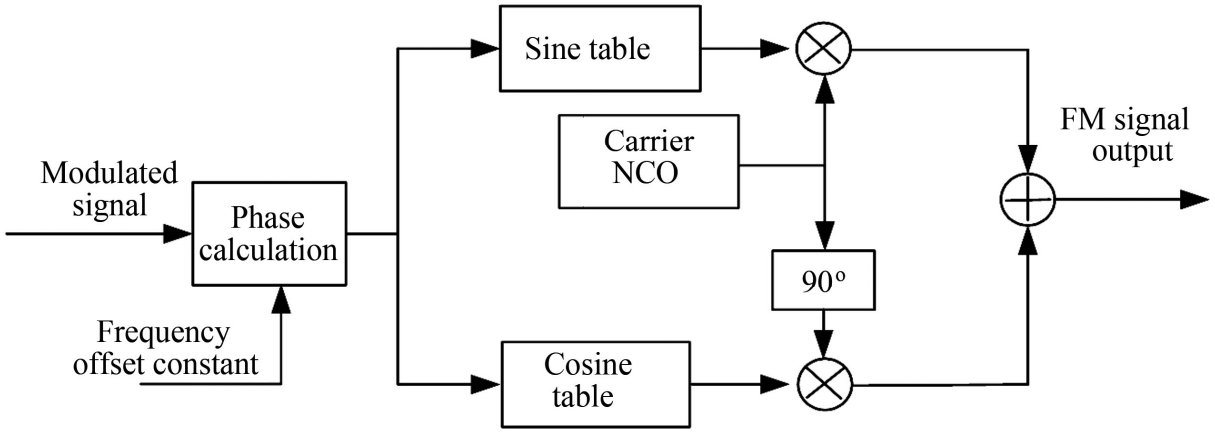


Figure 10




Crystal clock
DCM
Command parsing
Serial transceiver
TX
RX
FWDI to watchdog input
Watchdog module
Frequency division clock
TM
TC
Input clock
Clock management
Carrier generator
600Hz
Input data
Data receiving cache
Rado-mized
RS code +Add frame
Data mapping
Baseband phase generation
FM signal generation
I
Q
Mixing
To DAC


Input binary sequence
Serial to parallel
Shaped filter
FM
4-CPFSK signal


Sine table
Carrier NCO
FM signal output
Modulated signal
Phase calculation
90°
Frequency offset constant
Cosine table

https://www.svom.eu/en/home/#:~:text=The%20SVOM%20mission%20is%20a,from%20th

https://www.eoportal.org/satellite-missions/svom#the-svom-attitude-law

https://www.diva-portal.org/smash/get/diva2:1368970/FULLTEXT01.pdf