Positive Space Station Transmitter Control
http://oresat.org/pub/positive_space_station_transmitter_control.pdf
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Positive space station transmitter control.

[IARU 7.8]

Explain how telecommand stations will turn off the space station transmitter(s) immediately, even in the presence of user traffic and/or space station computer system failure. See No. 22.1 in Annex 1 (Provide full details of procedure to turn off space station transmitter(s).)

Positive transmitter control is achieved through the following mechanisms:

- A dedicated receiver and frequency for telecommand. The L band receiver block diagram illustrates this subsystem: http://github.com/oresat/oresat.github.io/tree/master/pub/L-band-receiver-v4.1.pdf
  Through this receiver a command to place the satellite into standby mode which ceases all transmitter function would be sent to the satellite. The standby mode will remain in effect until an initialize command is received by the OreSat Operations Group ground station.

- A watchdog on the receiver; The watchdog timer is an integral part of the C3 software system such that all critical code threads must be traversed in order to prevent the watchdog from timing out, causing a C3 computer hard reset and a state transition to standby. This assures critical code blocks are functioning normally.

- A physical time-out timer on the transmitter. The transmitter time-out timer functions without use of any onboard transceiver functions or CPU interaction. The transmitter time-out timer is permanently latched until the CPU receives an initialize command from the OreSat Operations Group ground station. Not even a power reset will place the satellite into a mode that would allow transmitter functionality to commence. The UHF transmitter (70cm transceiver) block diagram illustrates this subsystem:
  http://github.com/oresat/oresat.github.io/tree/master/pub/70cm-transceiver-v4.0.pdf

[IARU 7.9]

Explain the mechanism to ensure the space station is turned off in the event communications is lost with the command station.
(Provide details of system(s) in place to prevent unwanted transmissions from satellite if command capability is lost.)

OreSat0 requires a “keep-alive” command to be received on a periodic basis from the OreSat Operational Group's ground station in Portland Oregon. Without receiving this signal at least once in a 72 hour period, the satellite will go into standby mode and only listen for telecommand signals just as it did on initial deployment. No beacon signals will be transmitted. Only upon reception of an initialize command from OreSat Operations Group would transmitter functionality be resumed.