Typical Earth Station for Receiving OreSat Telemetry
http://oresat.org/pub/typical_earth_station_for_receiving_oresat_telemetry.pdf
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How to receive and decode the Morse code CW beacon
How to receive and decode the G3RUH AX.25 APRS packet beacon
How to receive the S band bulk-data (aka DxWiFi)

[IARU 9a]

Describe the hardware and software of a typical Earth station to receive signals from the planned satellite.

UHF:

- CW Beacon
This signal can be received by a station which includes a directional antenna of approximately 6 dBi gain and a HPBW of 40 degrees. Tracking of the satellite could be any form of manual tracking of a LEO satellite that one would us with an antenna such as an ArrowTM or other similar type. Tracking software such as GPredict under Windows or Linux could be used, or alternately SatelliteAR on an Android device. There is also the possibility to use an isotropic antenna such as a turnstile which would remove the requirement of tracking. The receiver requires a BFO to provide the aural tone for ordinary 20 WPM CW reception by ear. It is possible to use a CW or SSB type receiver for this.

- G3RUH / AX.25 Packet Beacon
This signal can be received by a station which includes a directional antenna of approximately 6 dBi gain and a HPBW of 40 degrees. Tracking of the satellite could be any form of manual tracking of a LEO satellite that one would us with an antenna such as an ArrowTM or other similar type. Tracking software such as GPredict under Windows or Linux could be used, or alternately SatelliteAR on an Android device. There is also the possibility to use an isotropic antenna such as a turnstile which would remove the requirement of tracking. The receiver requires a wide band FM (WFM) output of 15 to 20 kHz which is included in many current receivers. Alternately a legacy receiver could be modified to pick off the FM signal before the demodulators demphasis filter. There are also "Packet Ready" receivers that can produce this type of WFM output. The WFM is then provided to the audio input of a Packet Disassembler (TNC) capable of 9600 bit/sec G3RUH signals. Finally a terminal or laptop running a terminal emulator such as easycom is required to observe the ASCII encoded telemetry frames. These frames are encoded APRS packets which hold OreSat telemetry. The APRS encoding is described by Bob Bruninga, WB4APR at <http://www.aprs.org/> It is expected that after a period of time during OreSat's lifetime, Mike Rupprecht, DK3WN will provide a telemetry decoder software package on his website <http://www.dk3wn.info/> that will automatically decode the telemetry output from the TNC.

S band:

- Amateur-802.11 DxWiFi

To receive this signal it is intended that an operator use the groundstation described by the OreSat Live website, and run the software on that site for the purpose of tracking and image decoding.

For further guidance, see the link:

http://oresat.org/pub/typical_earth_station_for_receiving_oresat_telemetry.pdf