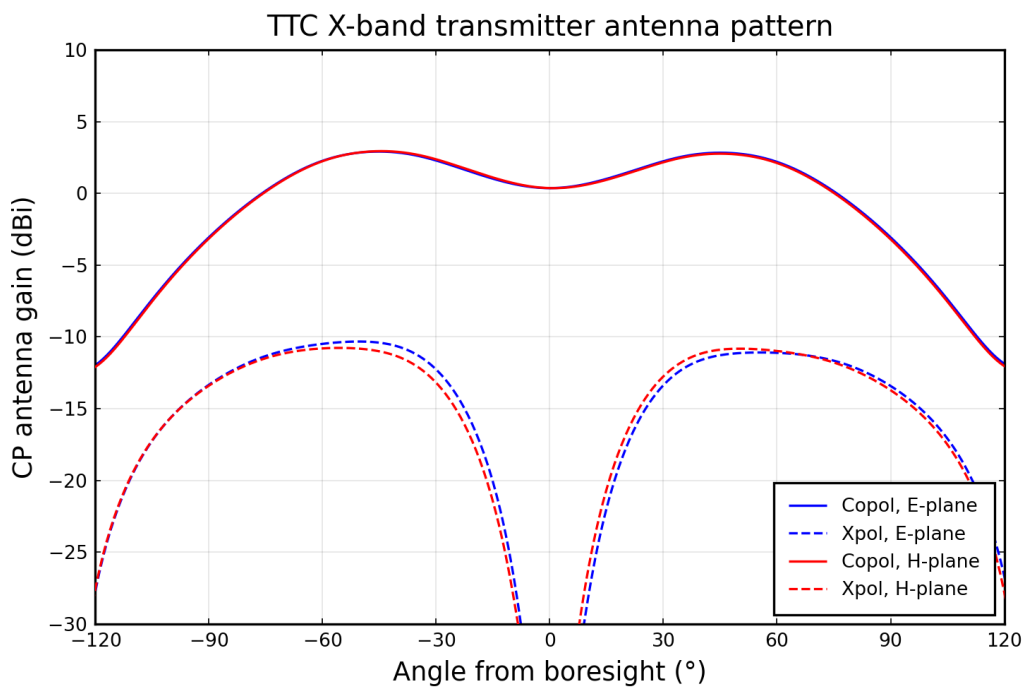
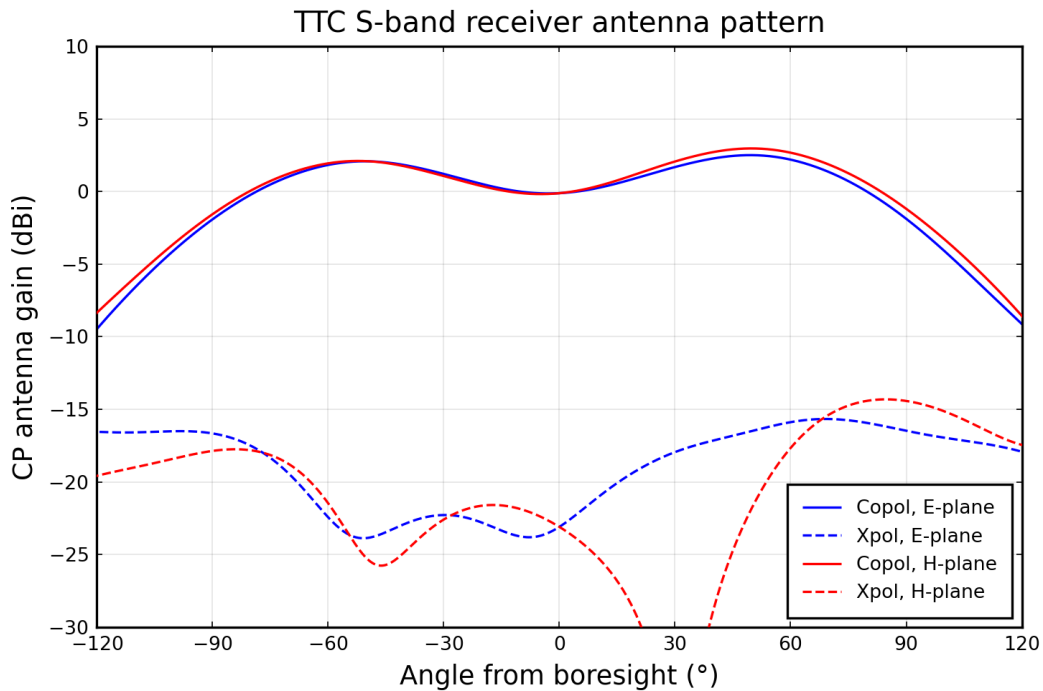
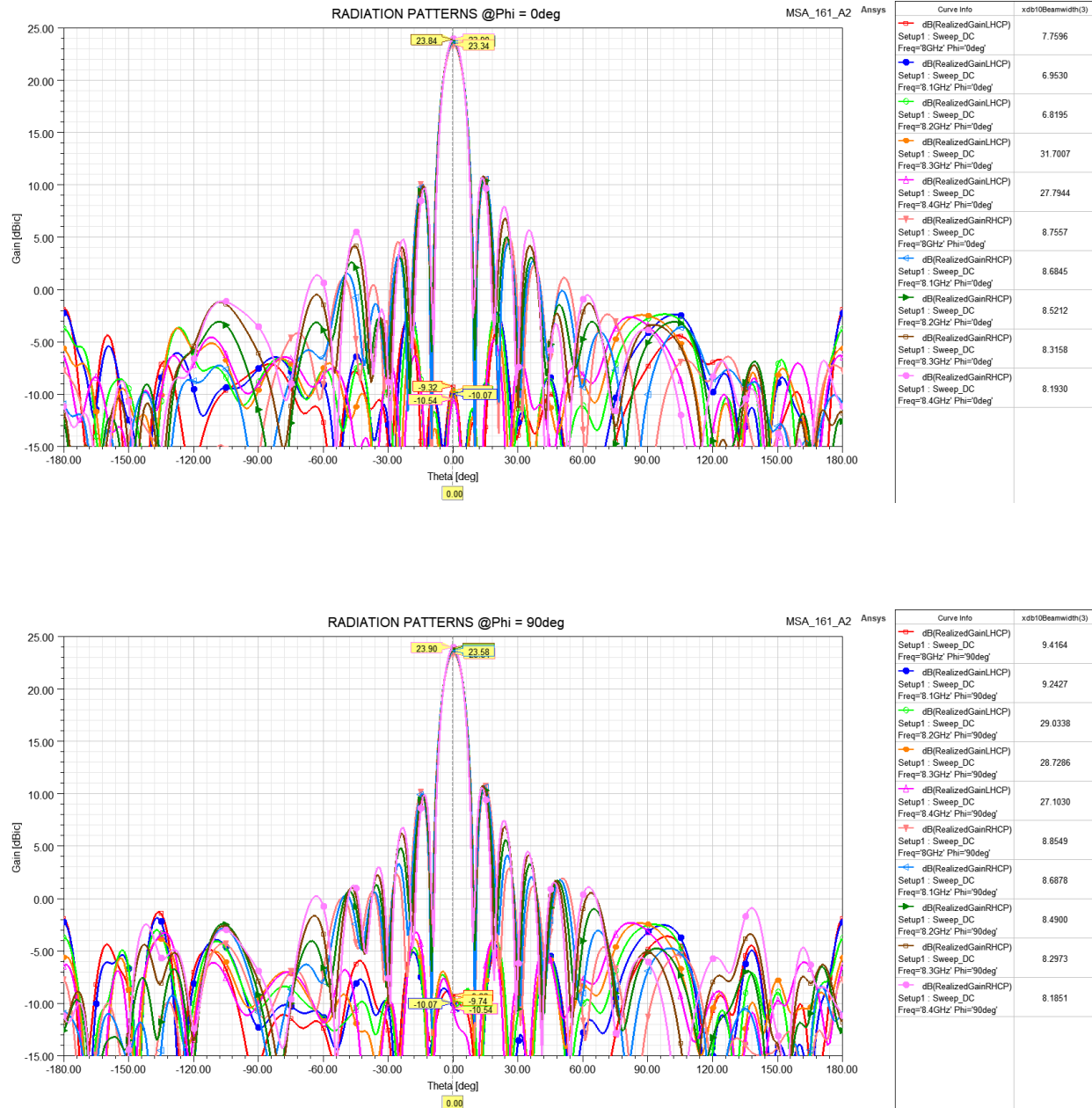


Attachment A

Space Station Antenna Radiation Patterns



HSR X-band transmitter antenna



Attachment B

Predicted Gain Contours

Consistent with 47 C.F.R. § 25.114(c)(4)(vi)(B), below, Muon Space provides predicted antenna gain contours depicted on the surface of the earth at the anticipated initial earth station locations.

47 C.F.R. § 25.114(c)(4)(vi)(B): For space stations in non-geostationary orbits, specify for each unique orbital plane the predicted antenna gain contour(s) for each transmit and receive antenna beam for one space station if all space stations are identical in the constellation. If individual space stations in the constellation have different antenna beam configurations, specify the predicted antenna gain contours for each transmit and receive beam for each space station type and orbit or orbital plane requested. The contours should be plotted on an area map with the beam depicted on the surface of the earth with the space stations' peak antenna gain pointed at nadir to a latitude and longitude within the proposed service area. The contour(s) should be plotted at 2 dB intervals down to 10 dB below the peak gain and at 5 dB intervals between 10 dB and 20 dB below the peak gain. For intersatellite links, specify the peak antenna gain and 3 dB beamwidth.

The following are the contour plots for all antennas on the spacecraft:

- TTC widebeam Tx and Rx antennas
- HSR (High-Speed Radio) Tx high-gain antennas

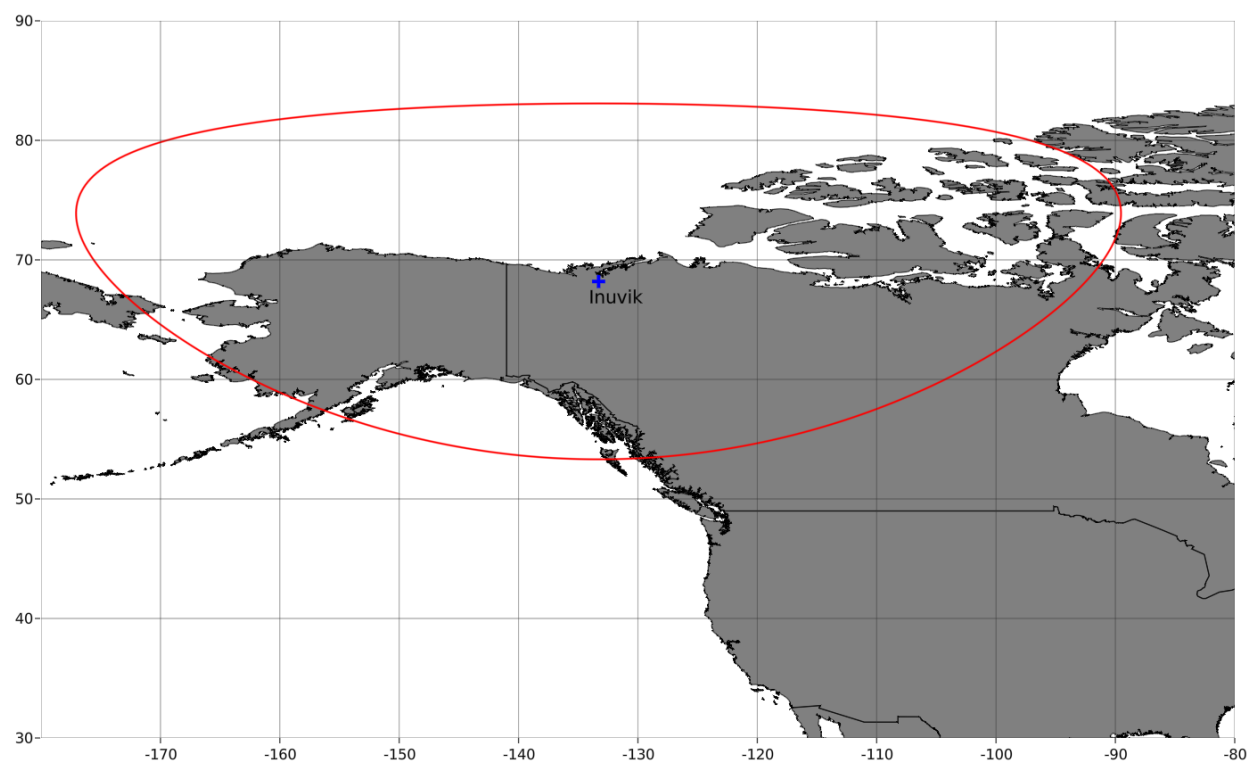
Since the TTC widebeam antennas have a < 2dB gain variation in the visible region footprint, only that footprint is displayed (loci of Earth points with 0° elevation).

The axis ticks are numbered in degrees of Longitude and Latitude.

TTC Tx and Rx antenna footprints

Inuvik station at nadir

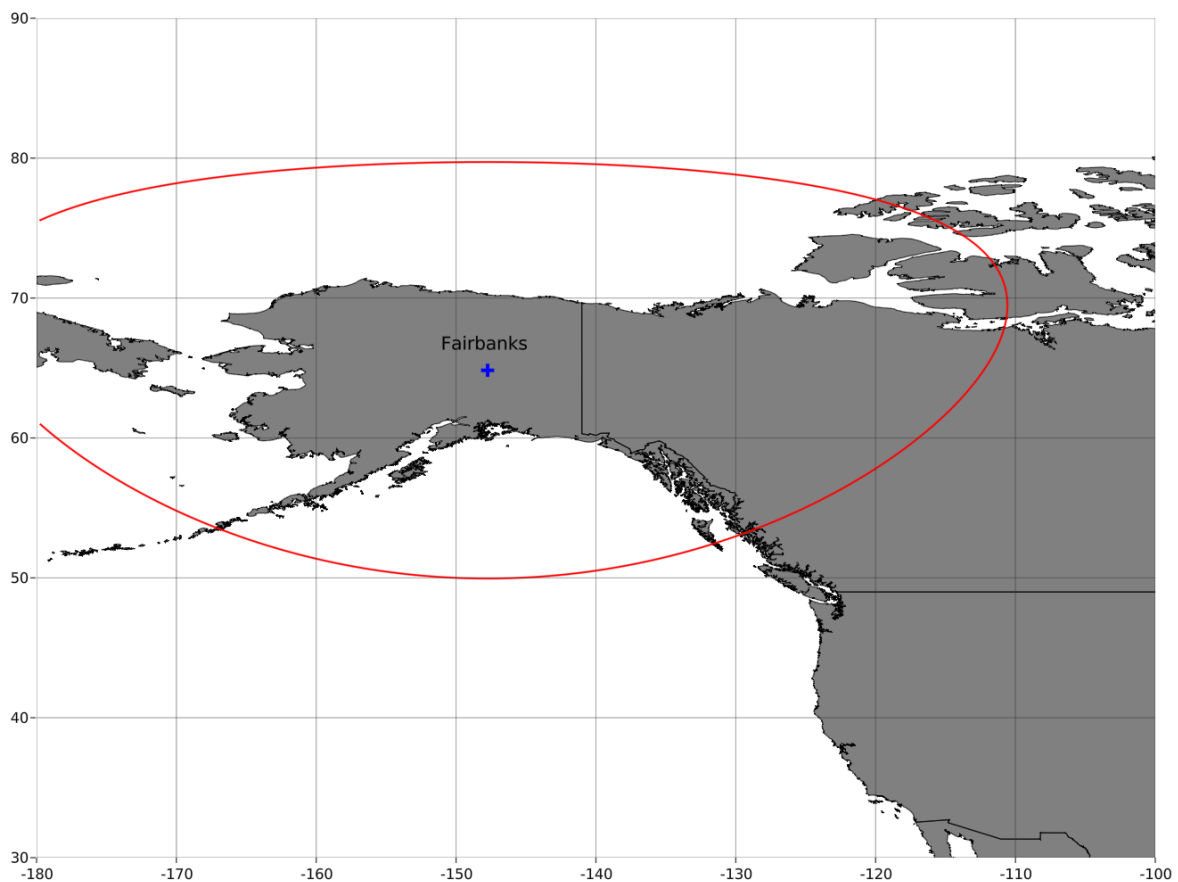
(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints

Fairbanks station at nadir

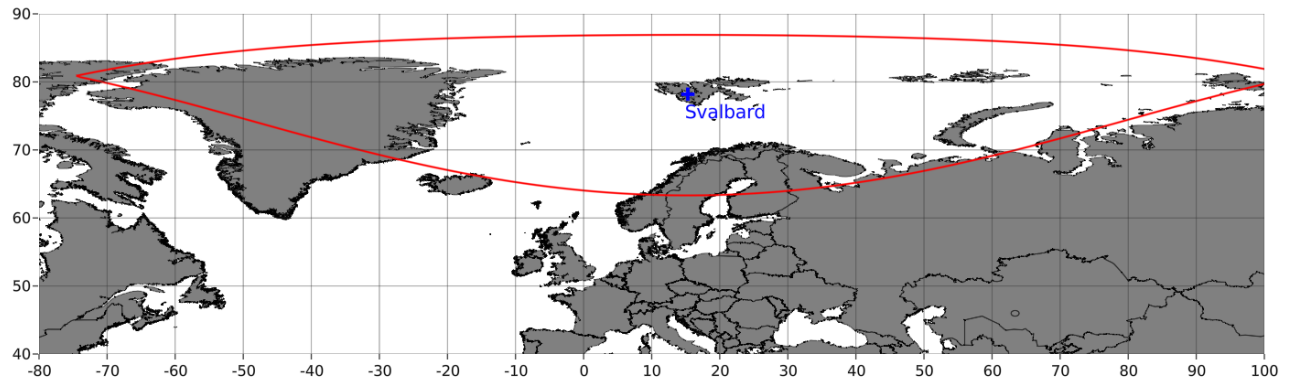
(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints

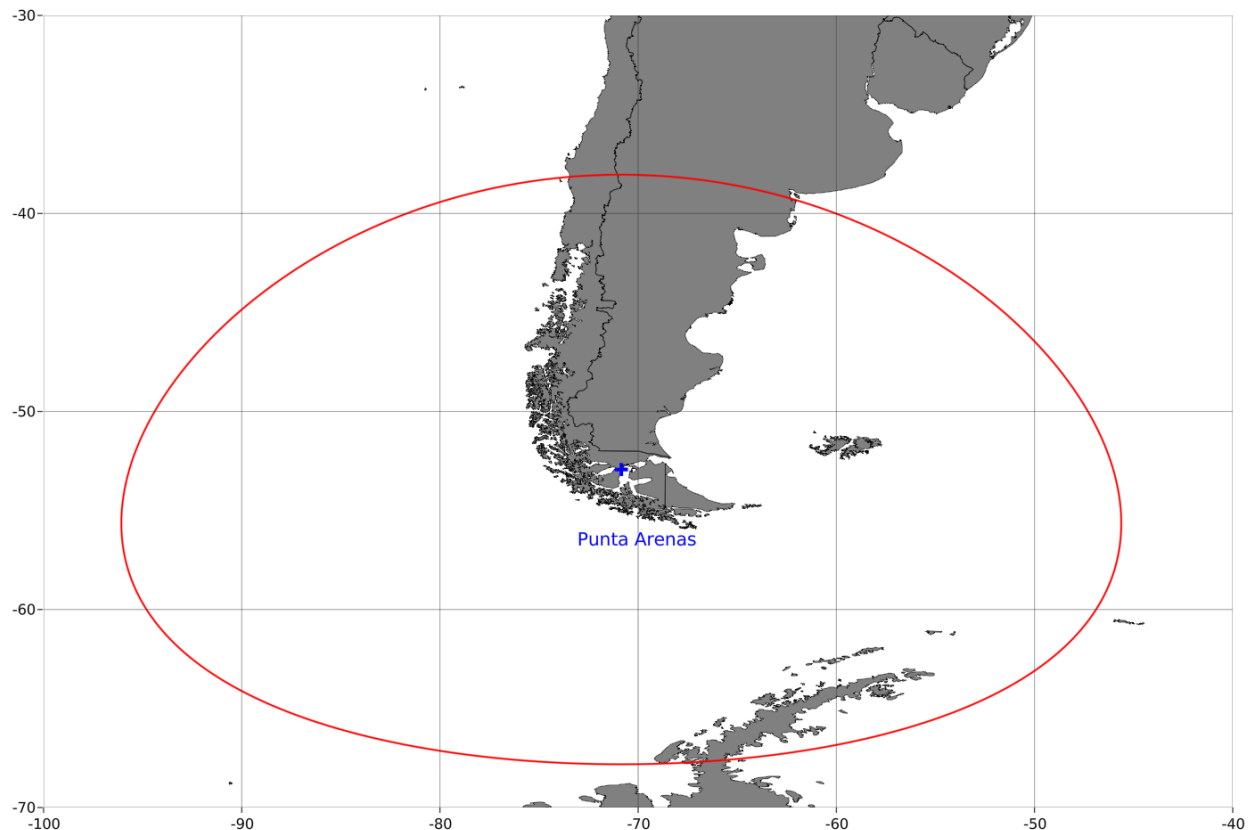
Svalbard station at nadir

(visible footprint displayed since antenna gain variation < 2dB in that region)



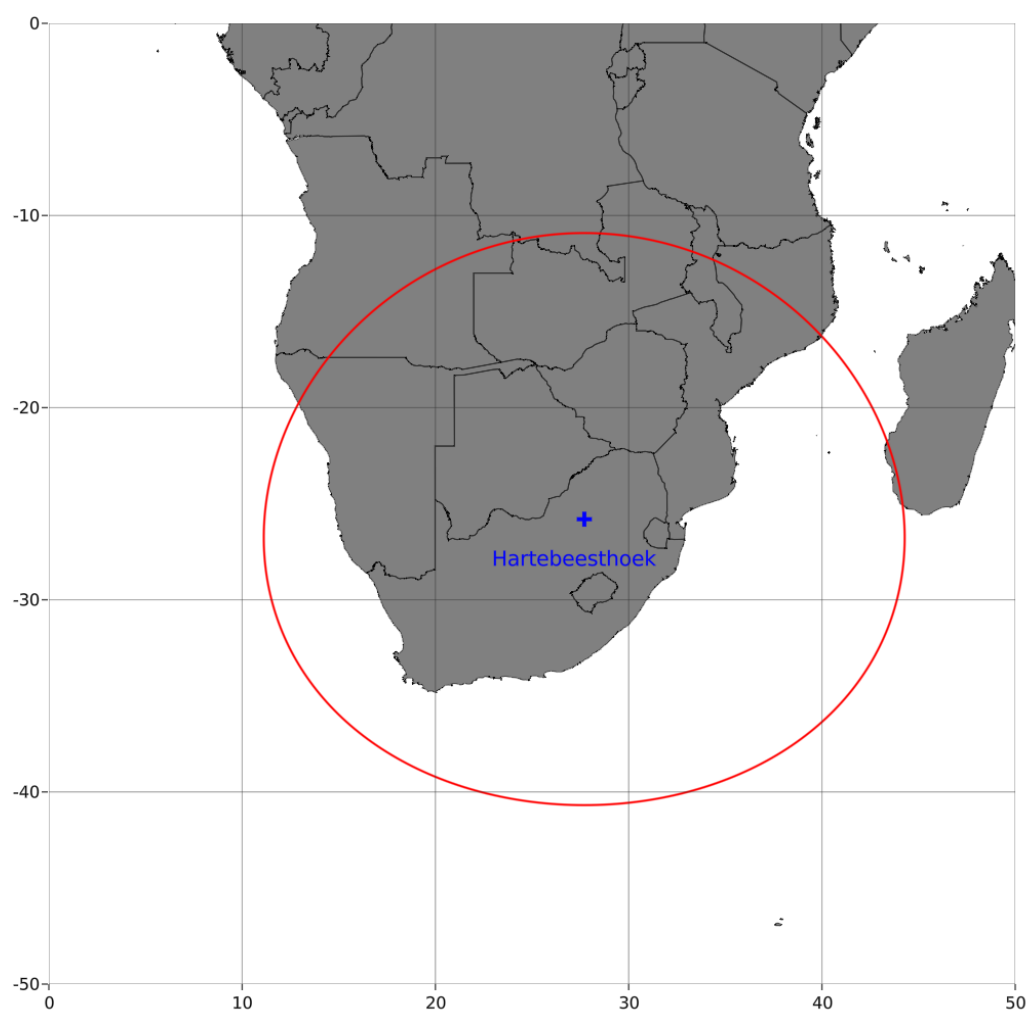
TTC Tx and Rx antenna footprints Punta Arenas station at nadir

(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints Hartebeesthoek station at nadir

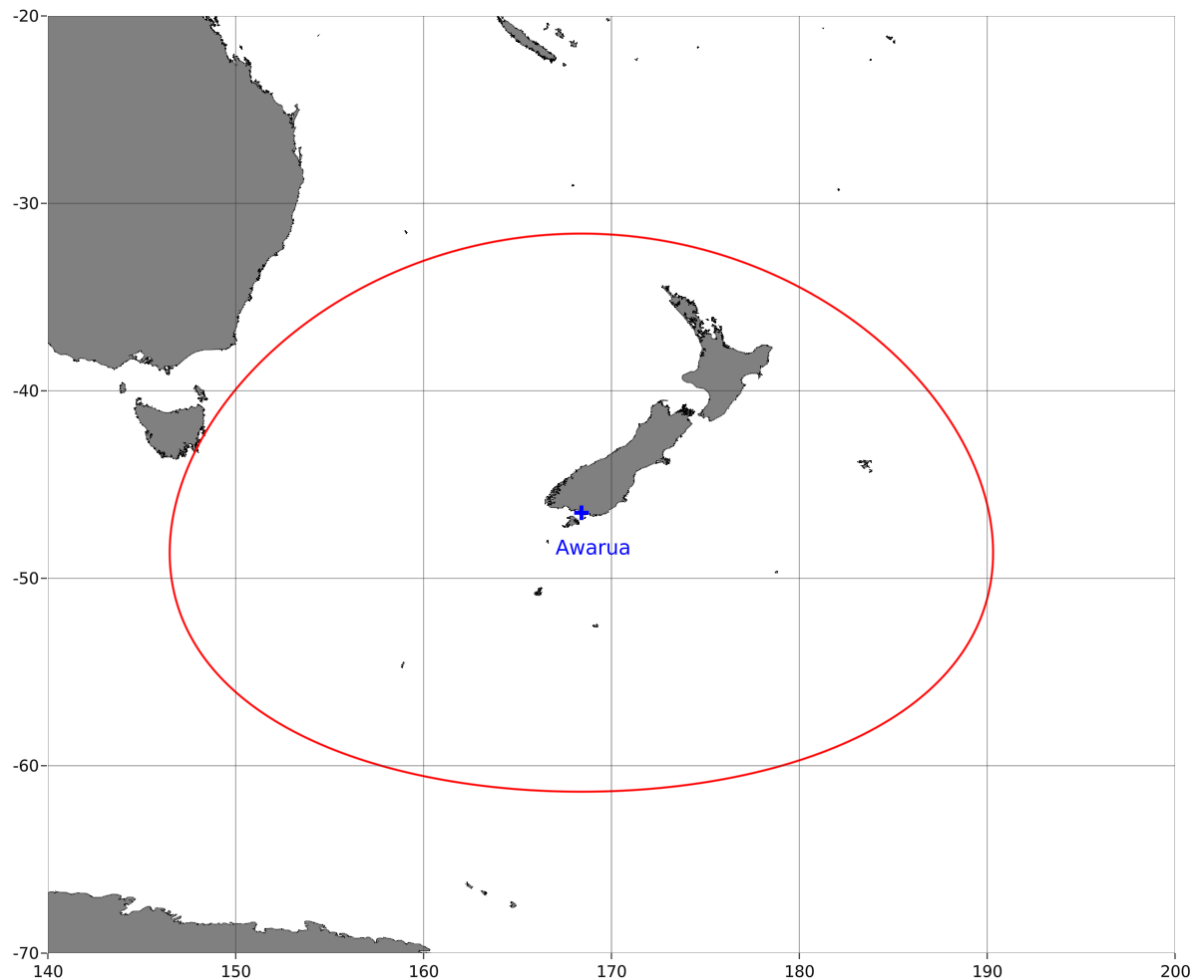
(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints

Awarua station at nadir

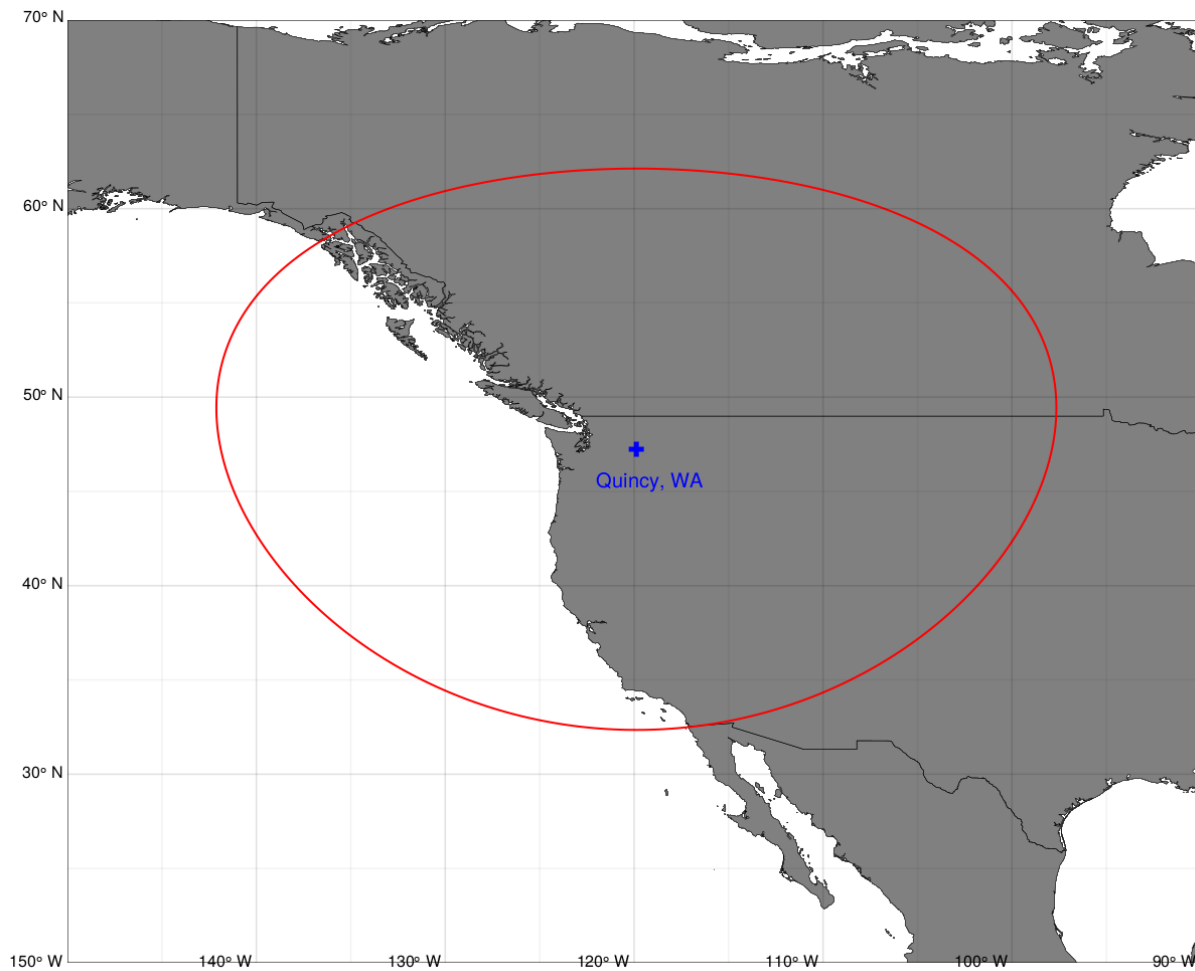
(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints

Quincy station at nadir

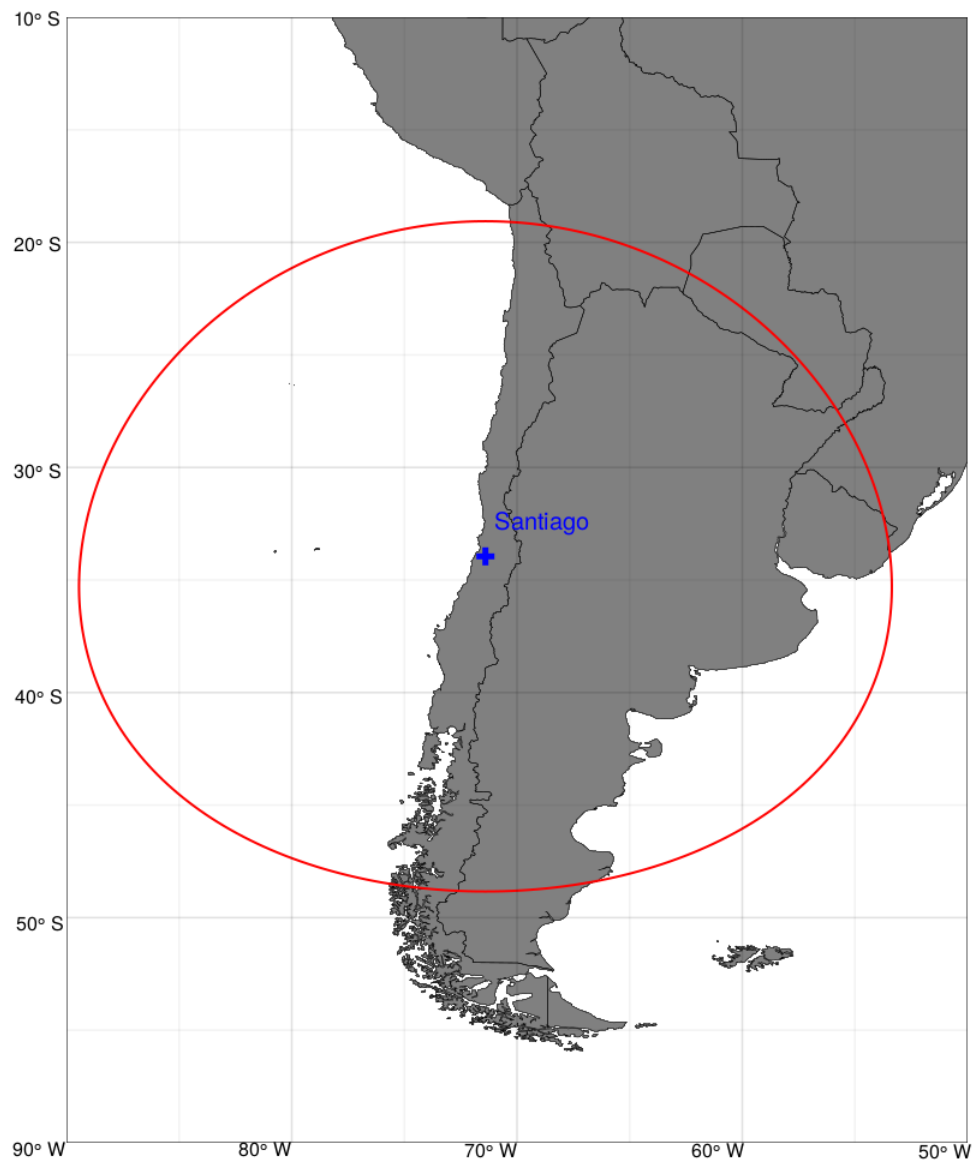
(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints

Santiago station at nadir

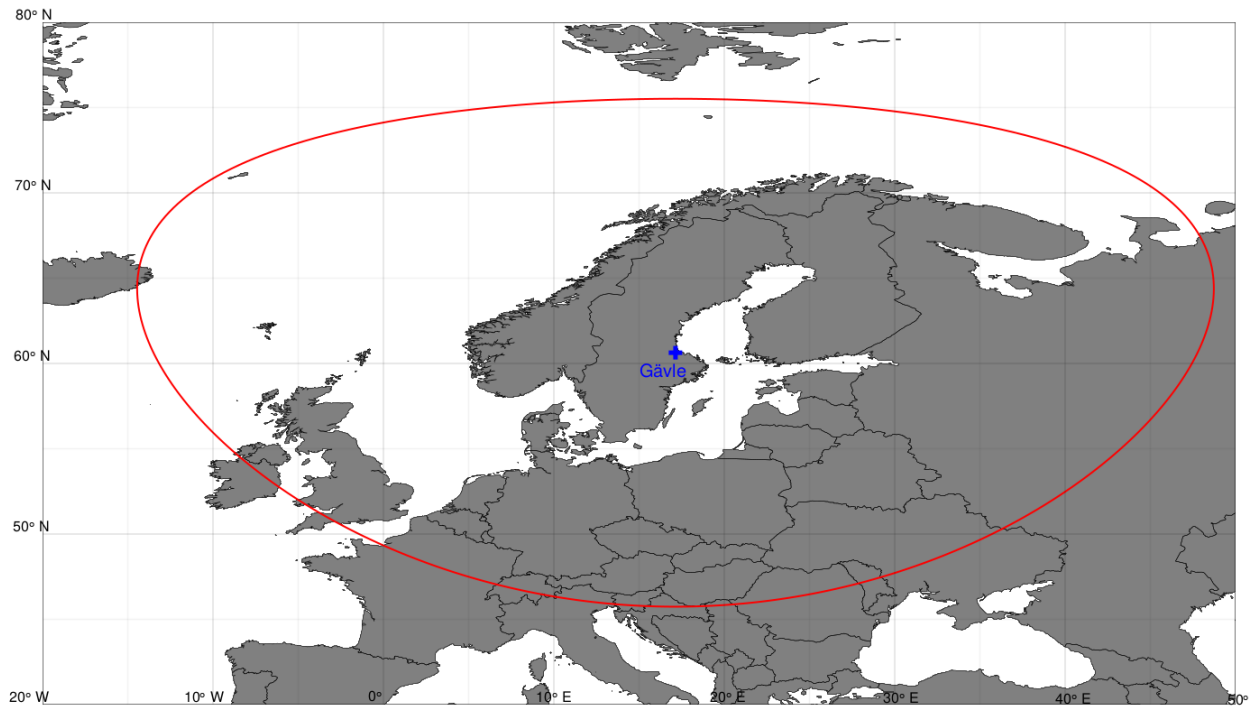
(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints

Gävle station at nadir

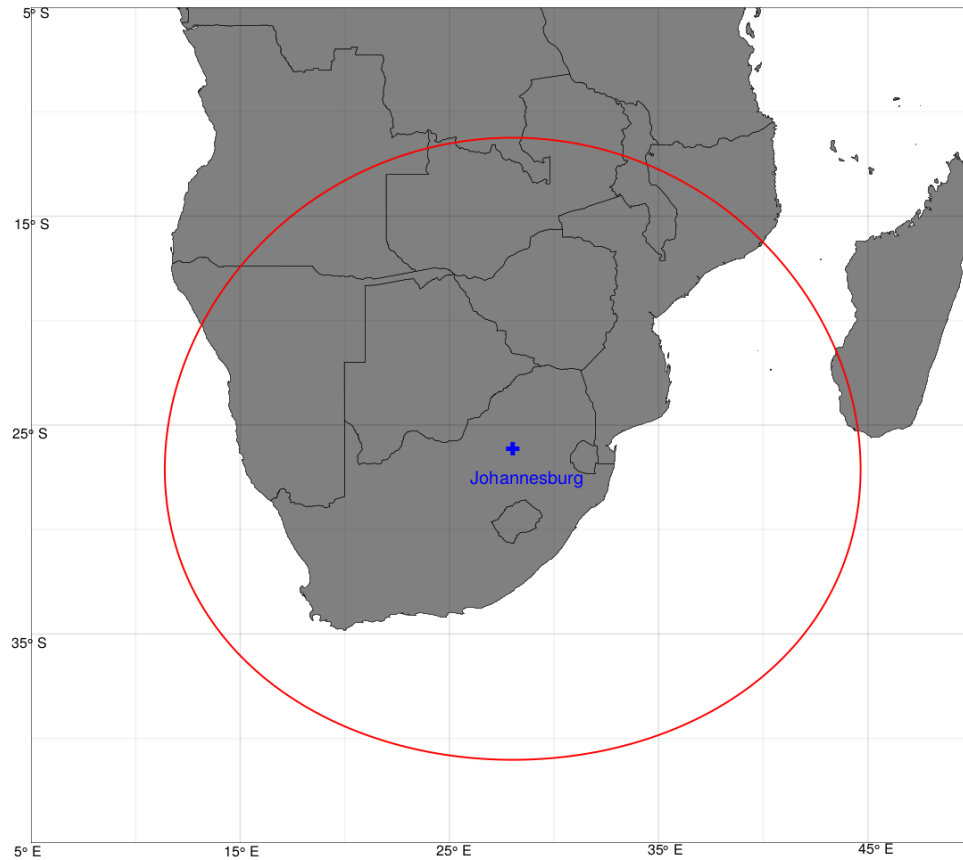
(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints

Johannesburg station at nadir

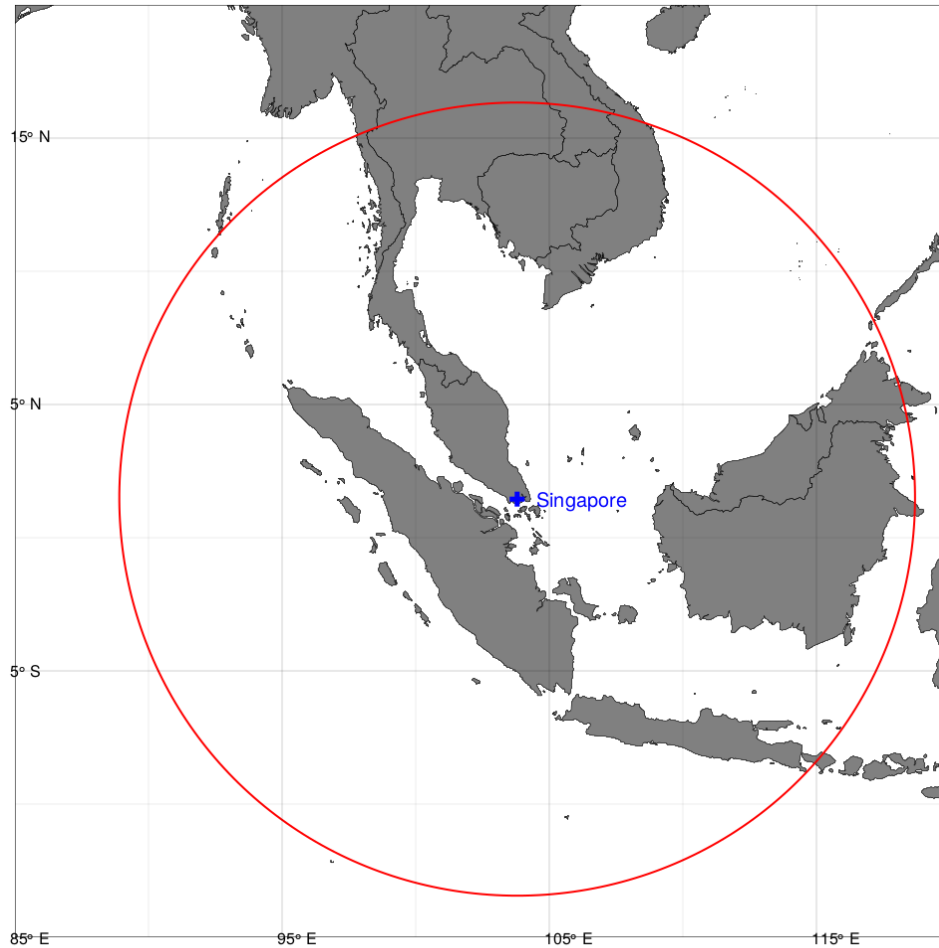
(visible footprint displayed since antenna gain variation < 2dB in that region)



TTC Tx and Rx antenna footprints

Singapore station at nadir

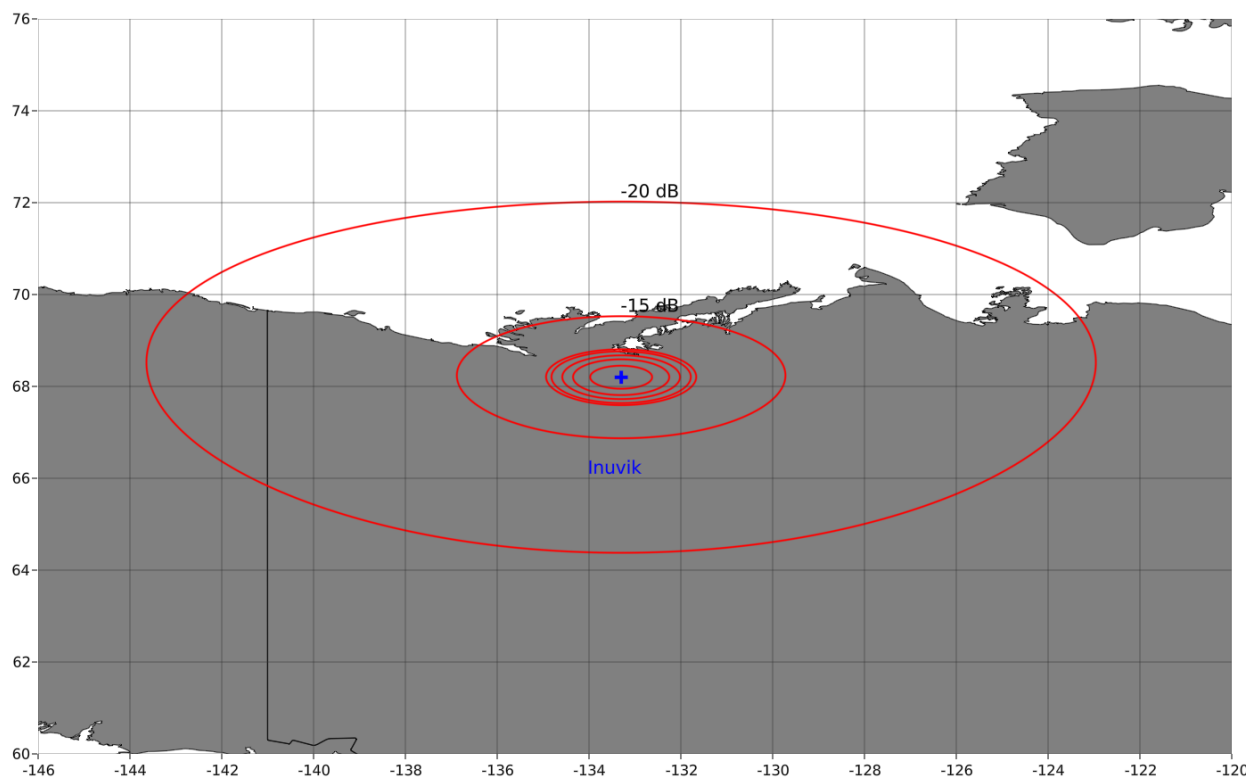
(visible footprint displayed since antenna gain variation < 2dB in that region)



HSR Tx antenna footprints

Inuvik station at nadir

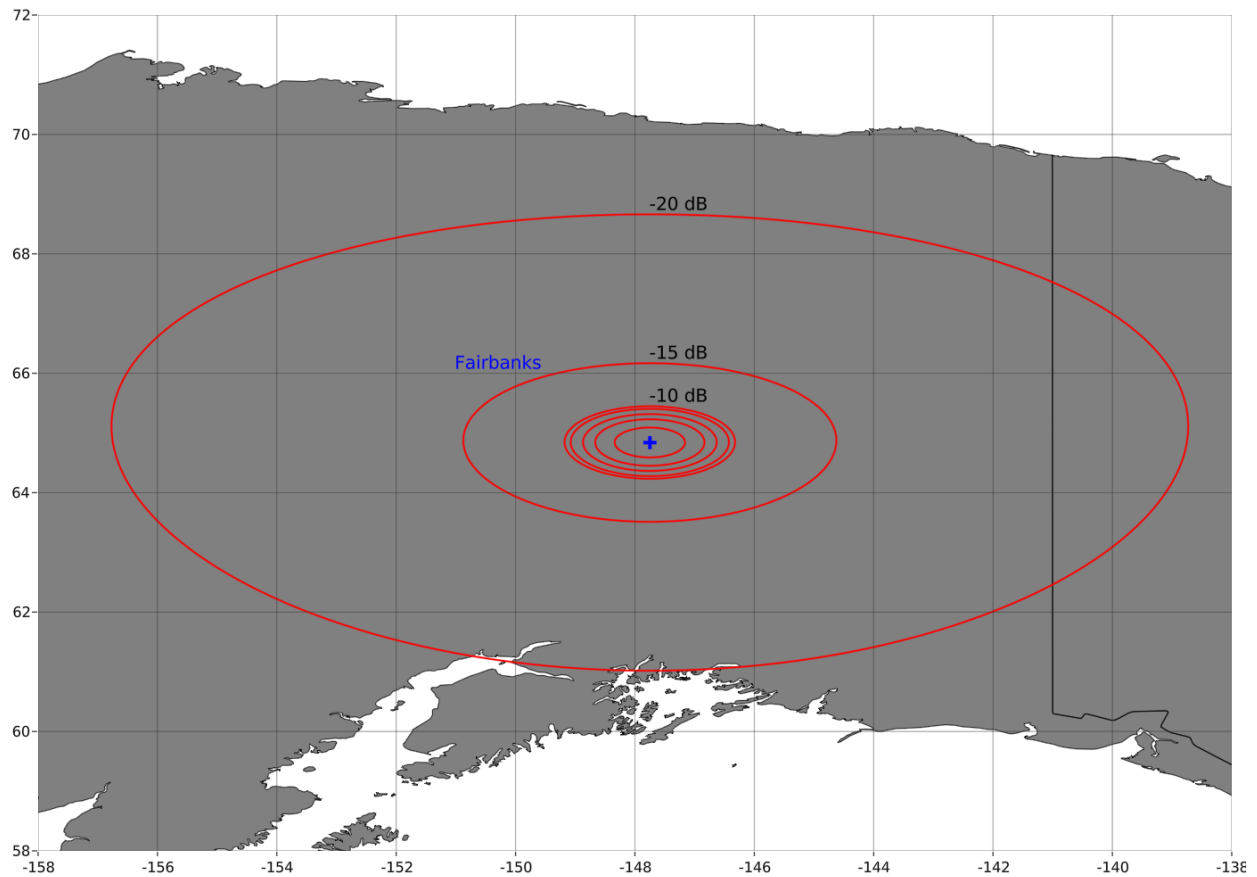
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Fairbanks station at nadir

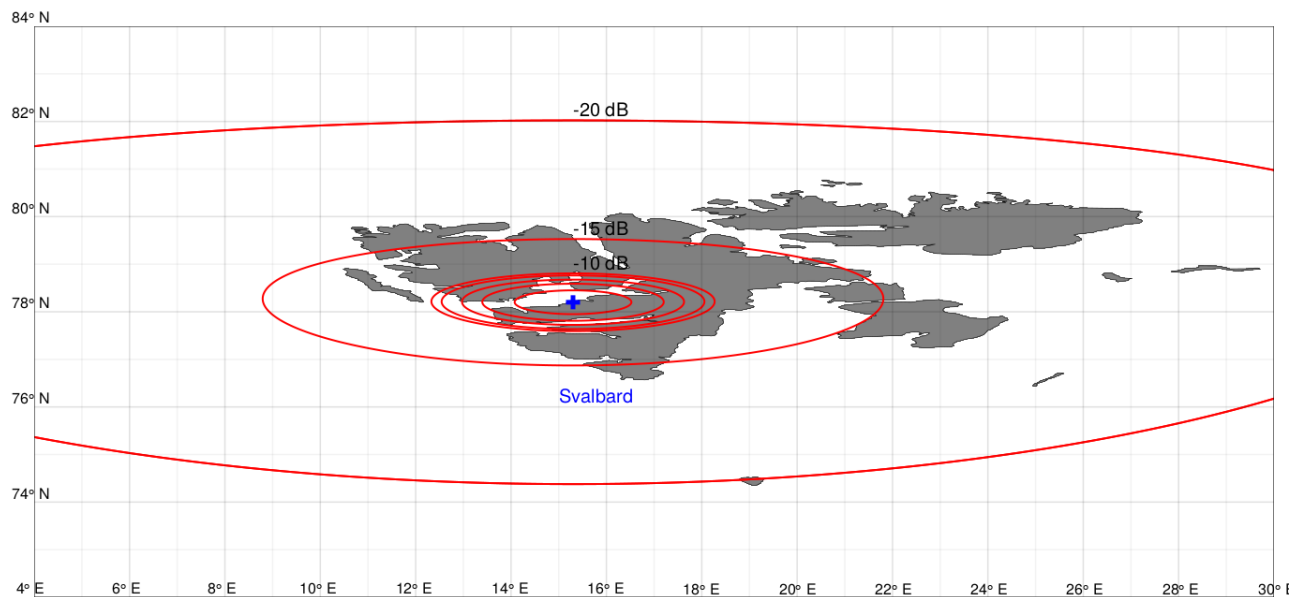
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Svalbard station at nadir

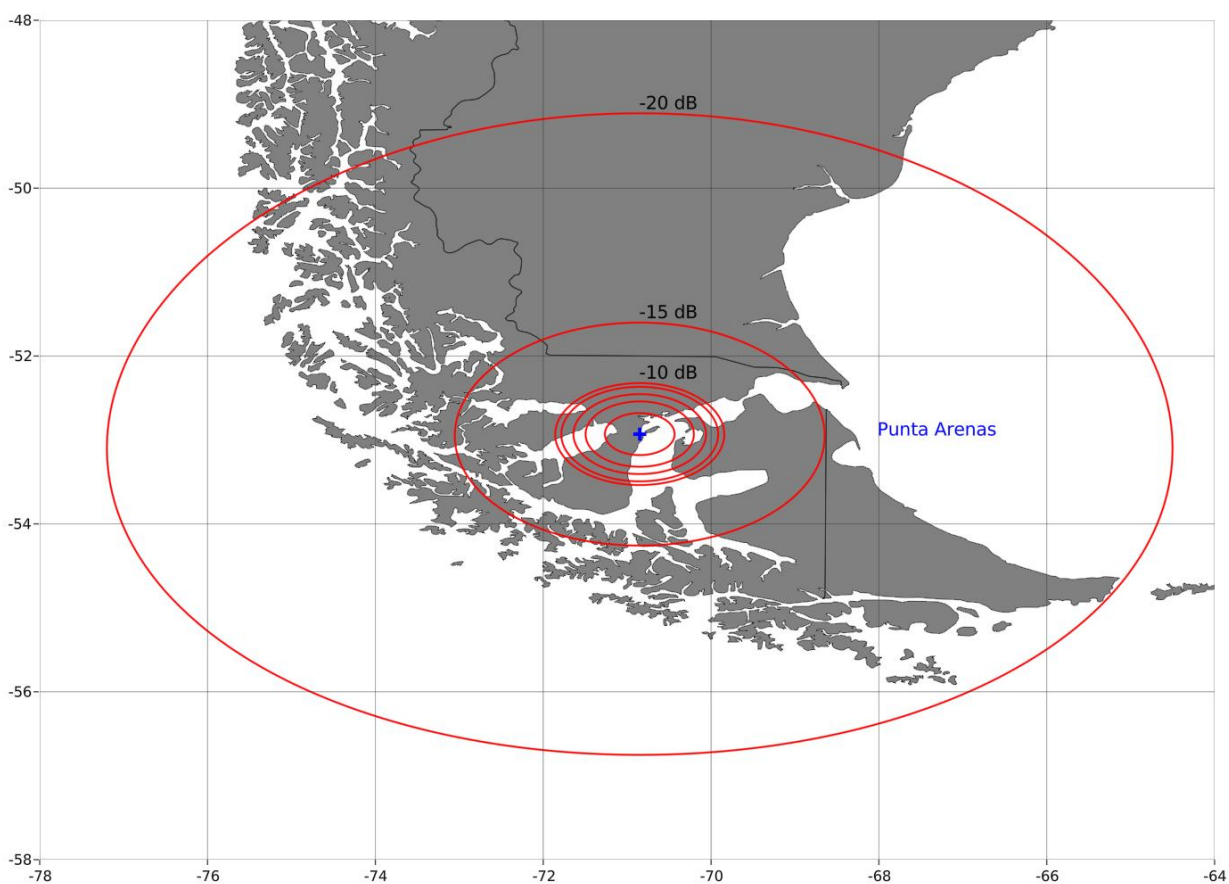
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Punta Arenas station at nadir

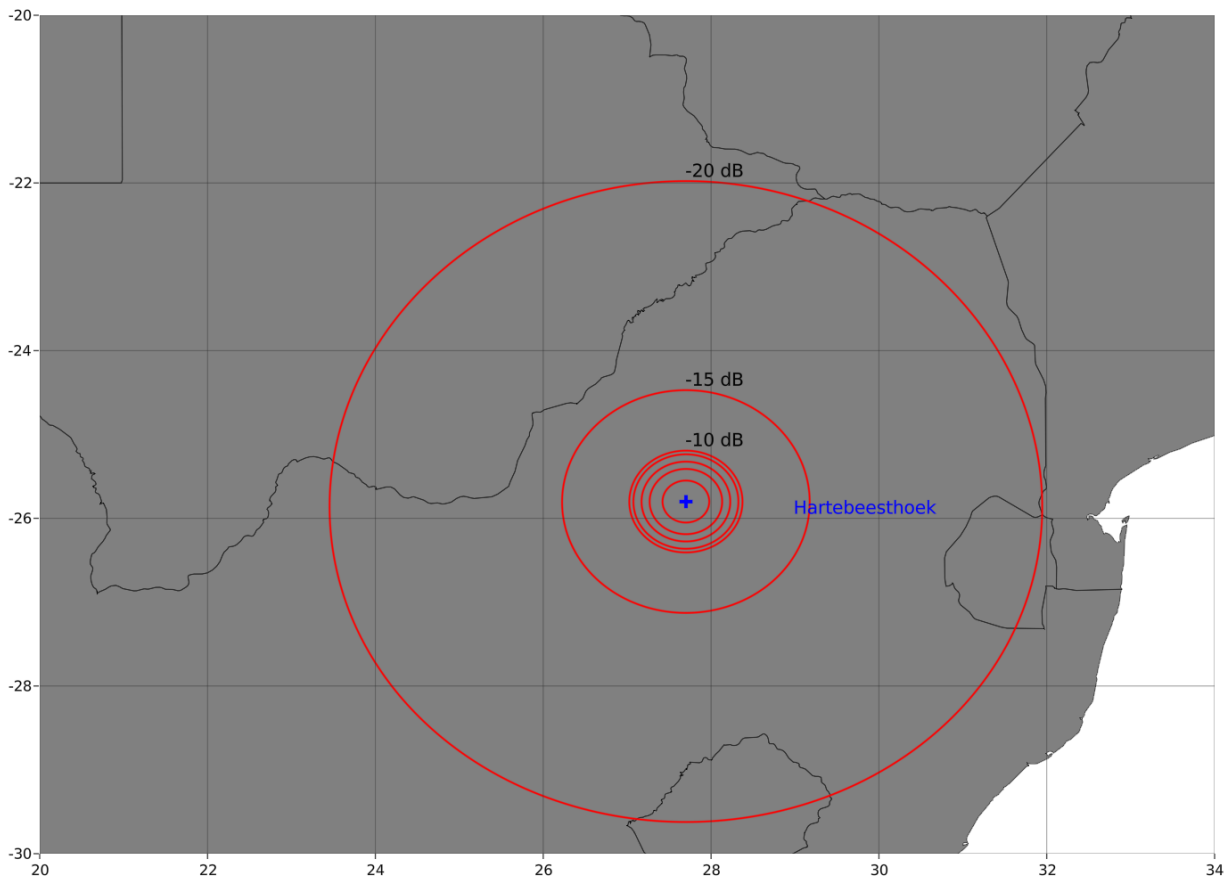
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Hartebeesthoek station at nadir

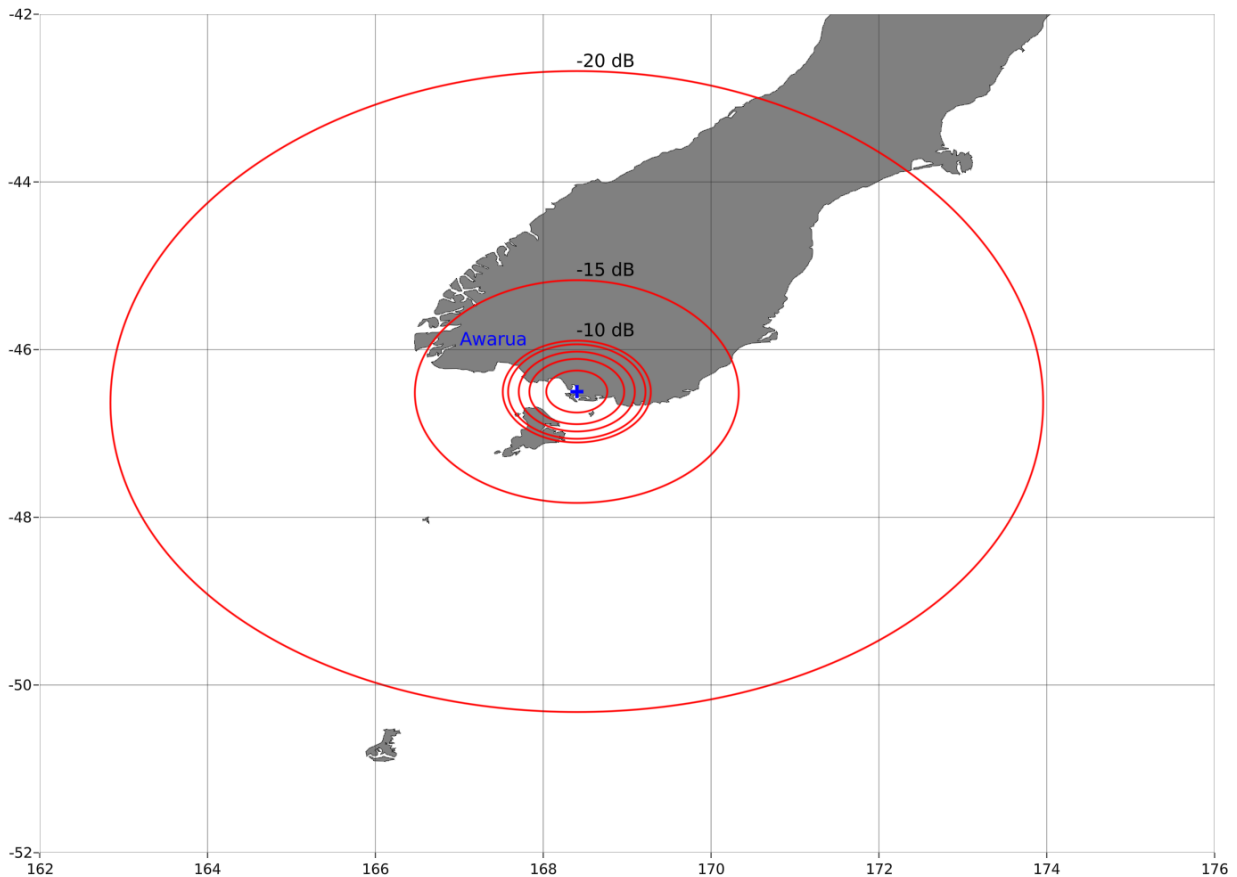
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Awarua station, at nadir

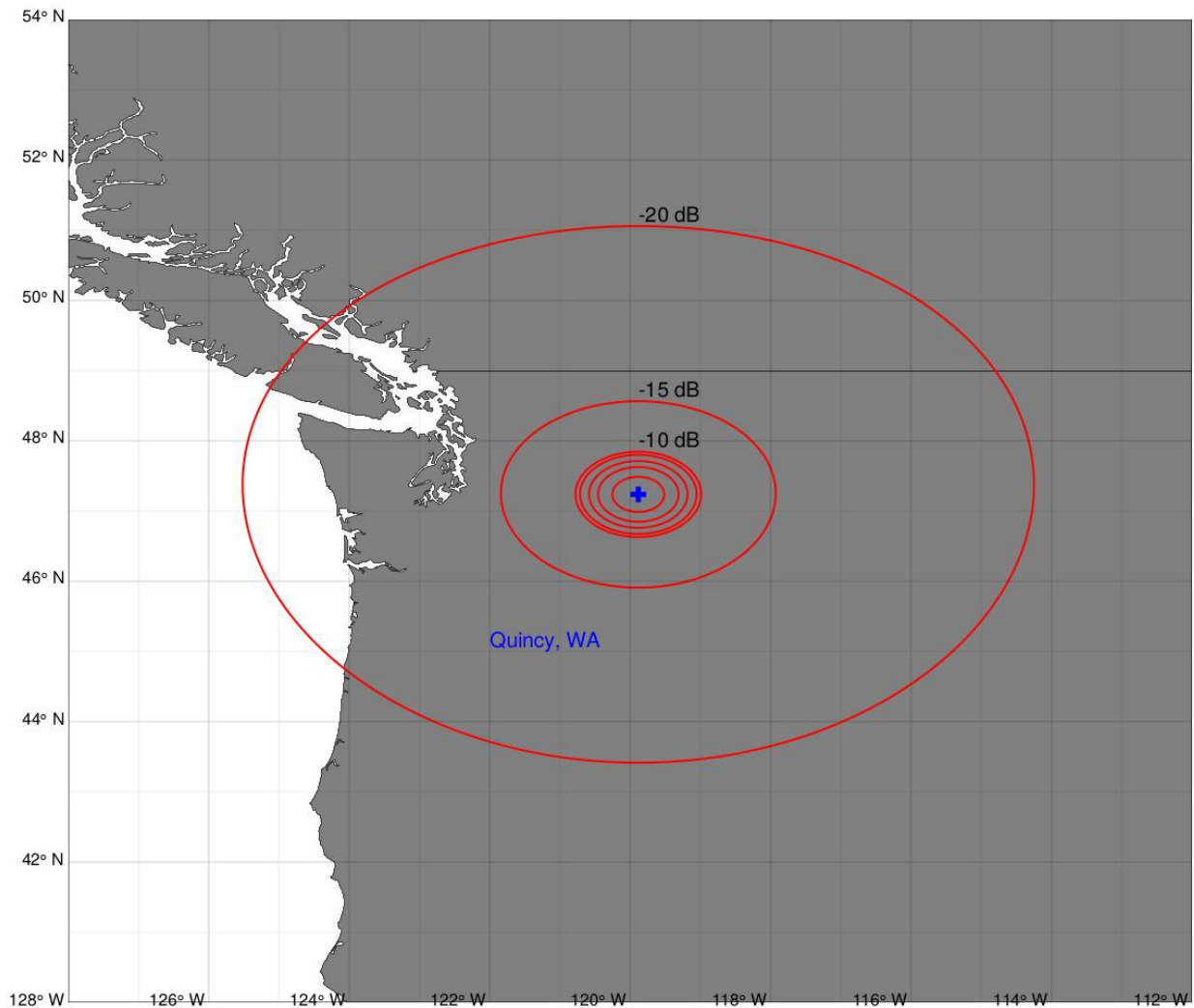
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Quincy, WA station at Nadir

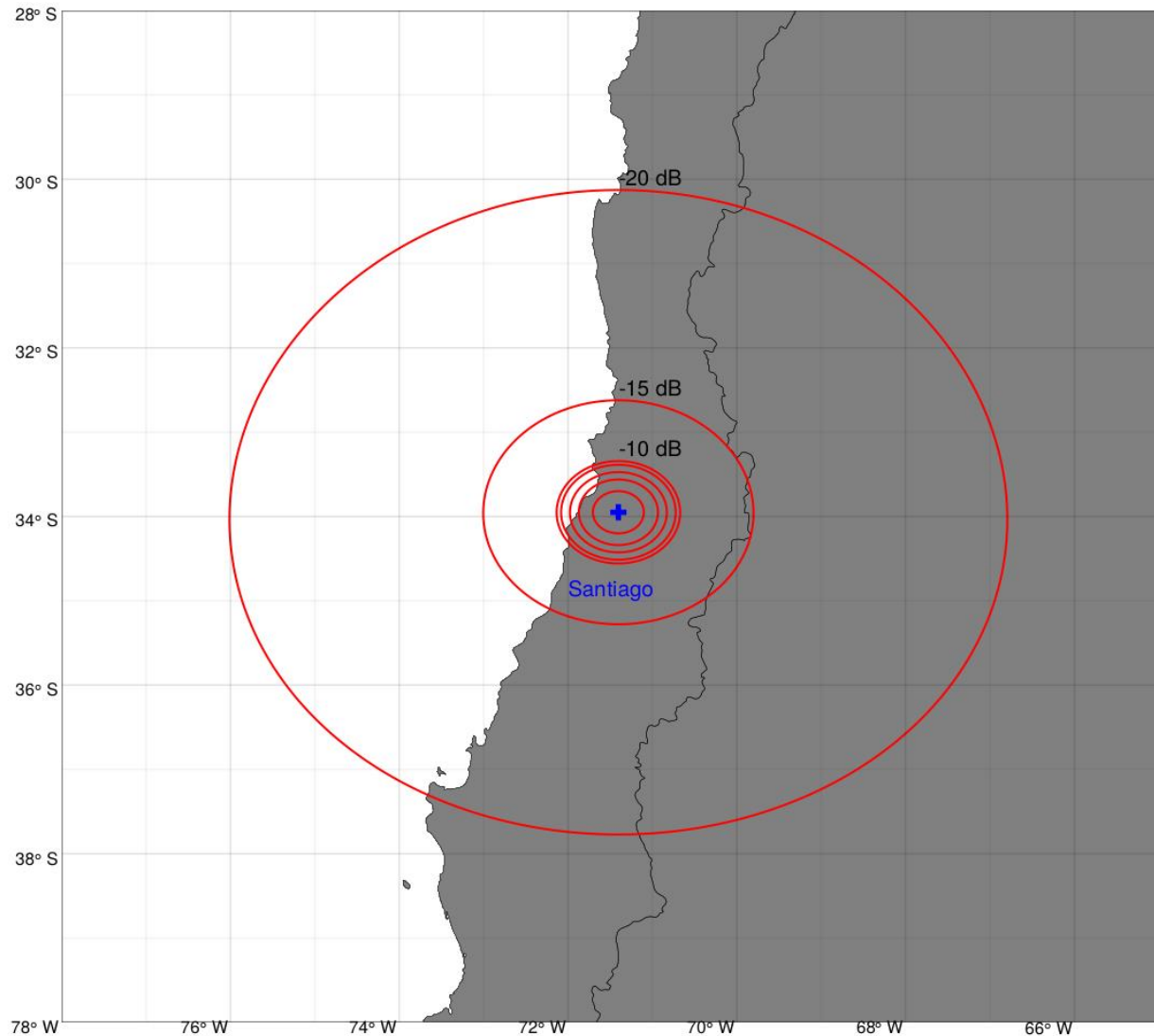
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Santiago, Chile, station at Nadir

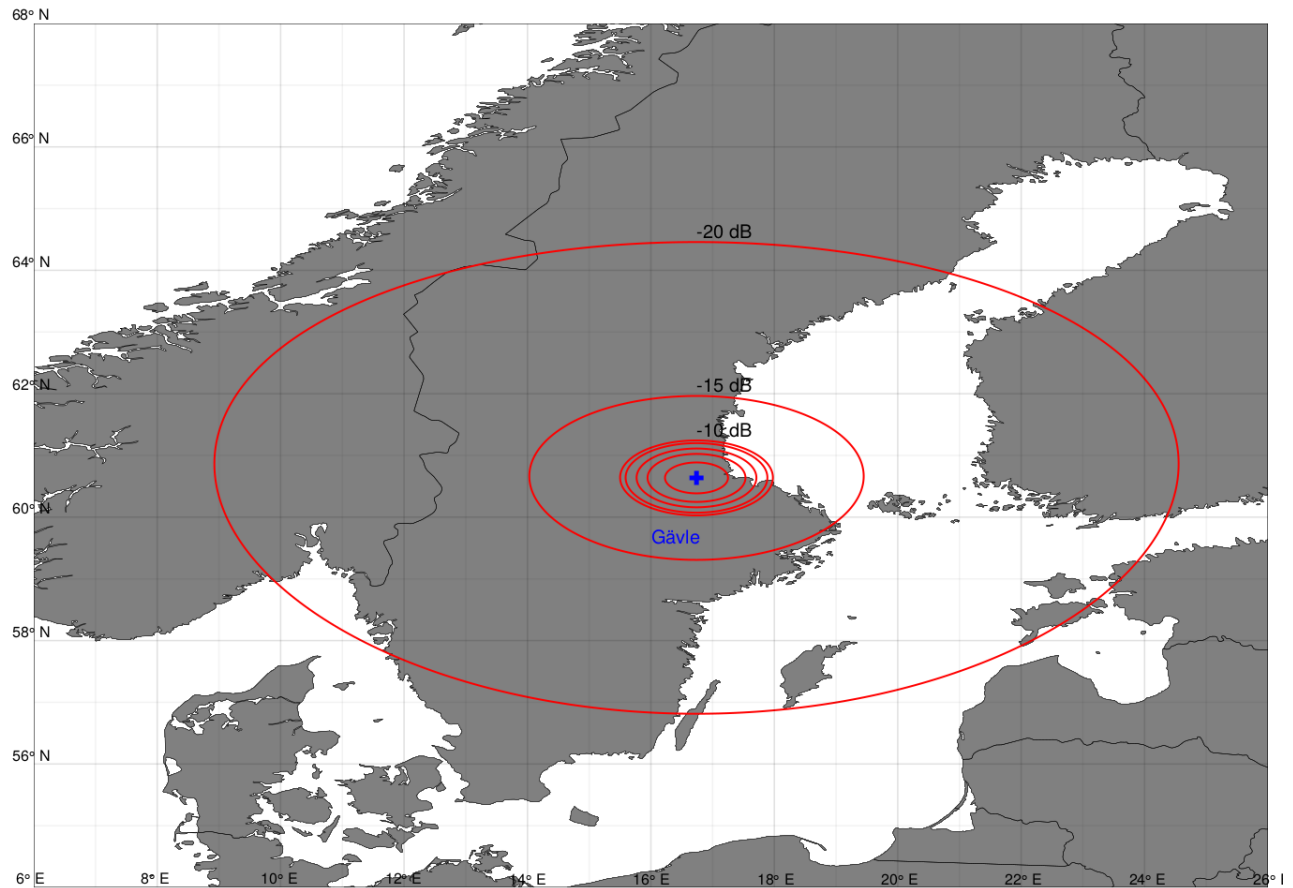
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Gävle, Sweden, station at Nadir

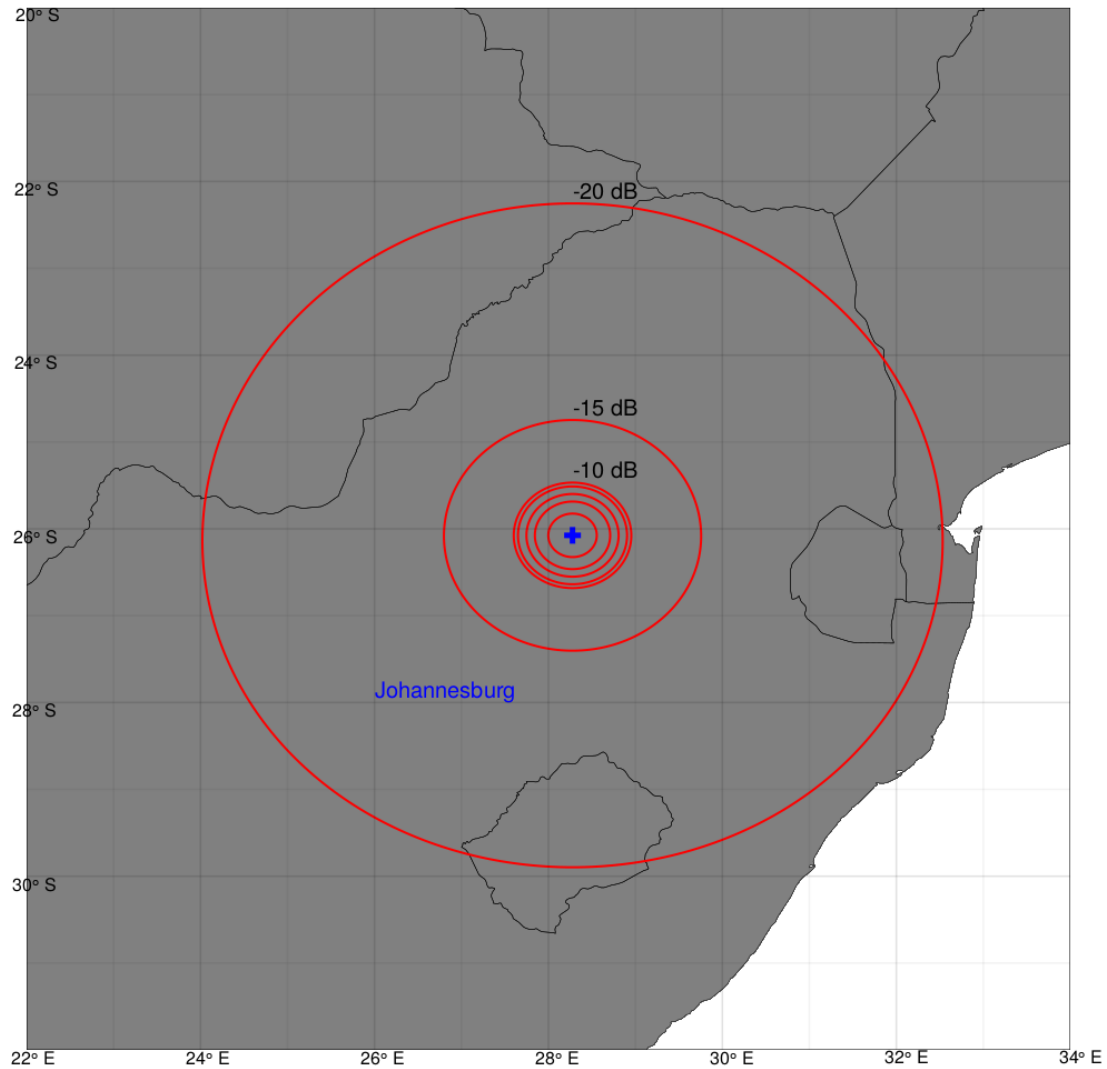
Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints

Johannesburg, South Africa, station at Nadir

Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station



HSR Tx antenna footprints Singapore station, at Nadir

Antenna contours for -2 dB, -4 dB, -6 dB, -8 dB, -10 dB, -15 dB and -20 dB from antenna peak gain when nadir pointing over the ground station

