

SUMMARY REPORT - ANTENNA POINTING TO GEOSAT

GEOPoint version 5.0

Site Name: Melbourne

Satellite Location : 180°E

Satellite Orbit Inclination (Drift) : 0.1°

Earth Station Location:

Latitude :	37° 48' 43.2" S -37.812°
Longitude :	144° 58' 1.2" E 144.967°
Altitude :	23 m

Nominal Antenna Pointing Angles:

Elevation :	33.1°
Azimuth :	48.9° TN
Azimuth :	37.0° magnetic
Approximate local magnetic deviation relative to True North: 11.8° (WMM-2020, Epoch: 2023)	

Inclined Orbit Pointing Angles:

Azimuth Range (TN):	48.8° to 48.9°
Elevation Range :	33.0° to 33.1°

Antenna Pointing Angles for Polar Mounts:

Hour Angle:	Nominal:	-39.4°	Inclined:	-39.4° to -39.4°
Declination:	Nominal:	5.8°	Inclined:	5.9° to 5.7°

Antenna Pointing Angles for X-Y Mounts:

X over Y Mount:

X Angle:	Nominal:	39.1°	Inclined:	39.1° to 39.1°
Y Angle:	Nominal:	45.3°	Inclined:	45.5° to 45.2°

Y over X Mount:

X Angle:	Nominal:	49.2°	Inclined:	49.2° to 49.1°
Y Angle:	Nominal:	33.5°	Inclined:	33.6° to 33.4°

Linear Polarisation Tilt Angles:

V-pol :	53.7°
H-pol :	-36.3°

Note: Polarisation Angles shown here are for the nominal case only. Linear polarisation angle is subject to unpredictable Faraday rotation effects in the ionosphere. Faraday rotation is negligible above 10GHz and does not impact circular polarisation.

Nominal Satellite Range and Propagation Delay:

Satellite Range :	38,341.3 km
Loop-back Delay :	255.6 ms

Note: Range and delay will vary as a satellite drifts due to orbit inclination. Loop-back delay is the delay for a signal to propagate to the satellite and return to the same earth station. Round trip delay for a signal to travel from one earth station to another, and for a response to return, will be approximately double the loop-back time.

Required Tracking Speeds:

Azimuth :	0.000341 deg./min.
Elevation :	0.000382 deg./min.
Hour Angle :	0.000000 deg./min.
Declination :	0.000477 deg./min.
X Axis :	0.000266 deg./min.
Y Axis :	0.000613 deg./min.

Date & Time of Peak Sun Interference:

Spring :	4 April 2023, 23:45:32 UTC
Autumn :	7 September 2023, 23:40:33 UTC

Note: The duration of each interference event and the total number of days effected will depend on antenna size, receive frequency, receive system noise margin, and satellite orbit inclination.

Earth Station Climate Data from ITU-R models:

Mean Annual Surface Temperature :	286.8°K, 13.7°C
Mean Surface Atmospheric Pressure :	1013.1 hPa
Mean Surface Water Vapour Density :	9.53 g/m ³
Surface Water Vapour Density 1% :	14.99 g/m ³
Mean Rain Height (hR) :	3.063 km
Rain Rate exceeded for 0.01% :	31.0 mm/h
Wind Speed exceeded for 0.01% :	13.2 m/s