

QUALIFICATION CERTIFICATE

Tallysman 1322 GNSS Antenna

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1. Introduction

1.1 Purpose

This document describes the environmental qualification tests carried out on the following product:

- 100423 - Tallysman 1322 GNSS Antenna

In the following sections, the tests and the corresponding test results are described.

1.2 References Standards

Table 1 presents the tests included in the Qualification Program with reference to ECSS documentation.

Table 1: Reference Standards

Test	ECSS/ESCC Reference	
Structural and Mechanical	Random Vibration	ECSS-E-ST-10-03C
	Sinusoidal Vibration	ECSS-E-ST-10-03C
	Mechanical Shock	ECSS-E-ST-10-03C
Thermal	Thermal Ambient	ECSS-E-ST-10-03C
	Thermal Vacuum	ECSS-E-ST-10-03C
Radiation TID	ESCC 22900	

2. Qualification tests

It is hereby certified that the product mentioned above has been subjected to the tests executed in relation to the standards mentioned in section 1.2

2.1 Structural and Mechanical tests

Sinusoidal Vibration		
Sine Sweep Vibration	Frequency [Hz]	Level [g]
	5-8	20mm peak-peak
	8-100	4,5
Sweep rate: 2 Octaves per minute		

Random Vibration		
Sine Sweep Vibration	Frequency [Hz]	ASD Level [g^2/Hz]
	20	0,026
	50	0,16
	800	0,16
	2000	0,026
Overall		14,1G RMS
Duration: 120 Seconds on each axis		

Shock Response Spectrum (SRS) Qualification Levels	
Shock levels based on Q = 10 quality factor	
Frequency [Hz]	Level [g] (+/- 6db)
100	40
1000	1000
2000	1500
10000	1500

Remarks: None

2.2 Thermal Vacuum Test

Thermal Vacuum Qualification levels		
Temperature range: -20°C to +35°C		
Pressure level: < 1.0×10^{-5} mbar		
Number of Cycles: 11		
Thermal Vacuum Test	CFT	Temperature [°C]
1		20
2		35
3		-20
4		35
5		-20
6		35
7		-20
8		35
9		-20
10		35
11		-20
Test duration:		

Remarks: None

2.3 Flight Heritage

The Tallysman 1322 GNSS Antenna is TRL 9 and has extensive flight heritage including many customer missions.

3. Conclusion

The Tallysman 1322 GNSS Antenna is tested according to the above-mentioned conditions and is fully functional and have the expected performance.

This certificate ensures that performance, test condition and test equipment are according to GomSpace quality.