

# DUTIES OF AUTHORIZED TEST ENTITIES UNDER THE MUTUAL RECOGNITION ARRANGEMENT PROCEDURE



**GSOA-103**

## Revision: (0) May 2024

Authorized Test Entity organizations (ATEs) witness testing of equipment submitted by manufacturers pursuing Type Approvals from one or more Satellite System Operators, according to GSOA-101 via the Mutual Recognition Arrangement (MRA) procedure. This document summarizes the duties of an ATE per GSOA-101.

### Revision History:

Revision	Date	Notes
30 Apr 2003	30 Apr 2003	Revision for comments
GSOA-103 Rev 0	Released 23 May 2024	Re-issue GVF-103 (no Rev) as GSOA 103 Rev 0 to maintain continuity of GVF-103 covering the duties of Authorized Test Entity organizations following the merger of the GVF with GSOA in June 2023. (Contributors: Colin Robinson, Gavin Cox and Irina Petrov)

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# 1 Introduction

## 1.1 Purpose

This document summarizes the duties of an Authorized Test Entity according to the Global Satellite Operator Association's Mutual Recognition Arrangement type approval procedure (document GSOA-101). It is intended for use by current ATEs and organizations considering nomination as an ATE.

## 1.2 The GSOA MRA procedure, GSOA-101

GSOA-101 is designed to facilitate mutual recognition by satellite operators of satellite ground equipment performance testing for the purposes of certifying equipment models, in order to eliminate the necessity of repeated factory or field testing.

It is intended to serve the following purposes:

- Define equipment levels (antennas, earth stations, and VSAT terminals)
- Define a complete set of mutually recognized tests for each equipment level ("MRA Testing")
- Define a process for assuring complete and accurate testing of equipment, and preparation of a file of test results and design review information ("Data Package")
- Define a process for the GSOA to authorize test witnesses ("Authorized Test Entities")
- Define the overall process for an initial Satellite System Operator Type Approval ("SSOTA")
- Define the process for follow-on (secondary) Satellite System Operator Type Approvals

## 1.3 Definition of an ATE

Per GSOA-101, section 10, an Authorized Test Entity (ATE), is defined as an organization or individual, authorized by the GSOA T-WG, to witness GSOA MRA Testing and to certify the completeness and accuracy of the measurement results and of the Data Package.

For example, the ATE does:

- Represent the community of satellite operator members of the GSOA
- Ensure that the manufacturer's measurements are accurate and complete
- Verify that the manufacturer's production process is capable of reproducing the performance demonstrated in testing

The ATE does NOT:

- Issue type approvals
- Assess pass/fail of the equipment
- Interpret satellite operator ground equipment specifications
- Grant waivers or exceptions to specifications

ATEs are unanimously elected by the satellite-operator members of the GSOA. Voting is managed by the GSOA T-WG following the MRA process. ATEs are elected according to equipment level, i.e., they are elected as qualified for Antenna Models, Earth Station Models, and/or VSAT Terminals.

## **2 ATE Qualifications**

### **2.1 General**

ATEs must be thoroughly familiar with all provisions of GSOA-101.

### **2.2 Qualifications for Antenna Model ATEs**

The ATE must have a thorough understanding of, and experience with, antenna measurement theory and practice, including:

- Co-pol patterns
- Cross-pol patterns
- Axial ratio
- Cross-pol discrimination (XPD)
- Antenna temperature profile
- Antenna pointing/tracking accuracy

The ATE must be qualified to assess the accuracy and capability of antenna measurement systems.

The ATE must be qualified to assess antenna manufacturing quality. In particular, the ATE must be able to assess the adequacy of critical process controls that determine the reproducibility of antenna performance.

The ATE must be qualified to assess antenna design quality, both mechanical and electrical, based on the manufacturer's submitted design review materials.

### **2.3 Qualifications for Earth Station Model ATEs**

The ATE must have a thorough understanding of, and experience with, RF system measurement theory and practice, including

- G/T
- EIRP and frequency stability
- Spurious oscillations
- Spectrum purity
- Amplitude response
- On- and Off-axis emissions

### **2.4 Qualifications for VSAT Terminal ATEs**

In addition to the qualifications given in 2.3, the ATE must have a thorough understanding of, and experience with, VSAT terminal measurement theory and practice, including

- Signal bandwidth
- Spurious emissions
- BER vs. Eb/No

### 3 ATE Responsibilities

The following table summarizes the key responsibilities of an ATE according to GSOA-101.

Responsibility	Reference sections in GSOA-101
Remain impartial and uninfluenced	1.3
Either (i) travel to the manufacturer's test site, or (ii) perform tests with the ATE's own facilities	1.3
Maintain professional and commercial confidence	1.6
Accept retainer contract from Primary Satellite Operator.	2.1, steps 1 and 6
Attend the Design Review meeting	3.1
Approve the Design Review Report	3.2
Assess accuracy and adequacy of the test facilities	2.1, steps 7 and 8
Witness Phase 2 testing	2.1, steps 7 and 8; 4.2 6.1
Sign off the Phase 2 Test Report as being compliant with GSOA-101	2.1, steps 7 and 8; 6.2
Reviews the complete Data Package and signs it off as being complete.	2.1, steps 7 and 8; 6.3
For antenna testing, approve of the Test Range Capability Report	4.2.2
In the event that the manufacturer changes the design and/or quality control procedures, and subsequently repeats any relevant aspects of the Phase 1 testing and/or revises the Design Review materials, the ATE must determine if any Phase 2 testing must be repeated. If so, the ATE must witness this testing and sign it off as an addition to the Phase 2 Test Report	2.1, step 10; 9.2
Accept retainer contract from Secondary Satellite Operators.	2.2

### 4 Becoming an ATE

GSOA-101 section 11 defines the process for election of ATEs. In summary,

- The GSOA T-WG chair regarding MRA matters coordinates elections
- Any GSOA member organization may nominate an organization as a candidate ATE
- The candidate ATE, or the nominating member, supplies a brief summary of the nominee's qualifications, including experience, the applicability of the experience to MRA Testing, and resources (such as personnel and facilities).
- The GSOA T-WG chair regarding MRA matters, distributes the nominee's qualifications summary to all satellite operator members of the GSOA
- The nominee must respond to questions if asked
- GSOA satellite operators vote "yes," "no," or "abstain" as regards the candidate test entity's competency in each MRA equipment level, i.e. Antenna model, Earth Station Model, and/or VSAT Terminal. Operators have 45 days to vote.
- To be elected, the ATE must not receive any "no" votes.

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