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# Duties of Authorized Test Entities under the Mutual Recognition Arrangement procedure

## GVF-103

### **Revision: 30 Apr 2003**

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

#### Revision History:

Revision	Date	Notes
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# 1 Introduction

## 1.1 Purpose

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

## 1.2 The GVF MRA procedure, GVF-101

GVF-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 GVF 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 GVF-101, section 10, an Authorized Test Entity (ATE) is defined as "an organization or individual authorized by the GVF MRA WG to witness GVF 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 GVF
- 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 GVF. Voting is managed by the MRA Working Group. 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 GVF-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 GVF-101.

Responsibility	Reference sections in GVF-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 GVF-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

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

- The GVF MRA working group chair coordinates elections
- Any GVF 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 MRA chair distributes the nominee's qualifications summary to all satellite operator members of the GVF
- The nominee must respond to questions if asked
- GVF 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.