Test Case Design: Lennart Olsson, Pitch Technologies, lennart.olsson@pitch.se

# RPR v2 - Object Class – Aircraft - Consumer

## Test Purpose

The test shall verify that the System under Test (SuT) has implemented the GRIM RPR v2 requirements for the RPR v2 object class BaseEntity.PhysicalEntity.Platform.Aircraft. The requirements in GRIM is found in [Ref 1], chapter 7.6.1, Object Classes. The test shall verify that attributes (required and optional) stated in the Conformance Statement are managed correct.

The test case also includes requirements for the three levels of capability at the RPR v2 Aircraft Consumer Badge.

## Overview

[Ref 1], chapter 7.6.1.3: “This object class provides an attributeless subclass of Platform used to support DM filtering. It is equivalent to the DIS Air domain in that it represents platform entities such as airplanes, balloons, etc. that operate mainly in the air, but that include some limited land operations. This object class is publishable because it qualifies as a leaf node of the RPR FOM.”

## Conformance Statement

The owner of the SuT shall submit a Conformance Statement for the SuT, it will identify the required scope of correct managed attributes in the Test Protocol column for consumed class attributes.

## Test Environment

The SuT shall execute in the IVCT framework. The framework will stimulate the SuT with data to consume according to the Conformance Statement.

## The Scope of the Tests

### Declaration Tests

A consumer of a class attribute shall subscribe to the class attribute.

### Syntax Tests

The tests checks that correct decoding are used when receiving instance attribute updates.

### Semantic Tests

The semantic correctness of the attribute values is checked when applicable, e.g. for attributes describing the state of the lights on an aircraft shall these lights be shown in theirs correct state.

## Consumer Requirements

To verify that consumed attributes are used in a correct manner shall the IVCT framework provide a scenario that verifies:

* That GRIM RPR v2 required attributes are listed in the conformance statement, are subscribed, correct decoded and that attribute values are correct managed in a semantic view. The Spatial attribute field values for dead-reckoning together with the timestamp shall be used to calculate position, orientation and velocity when any of these parameters are needed by the consumer.
* That GRIM RPR v2 optional attributes that are listed in the conformance statement are subscribed, correct decoded and that attribute values are correct managed in a semantic view.

# RPR v2 Aircraft Badge Requirements

## Bronze Badge:

The listed attributes for this badge are the normally required attributes in a federation to get a basic level of interoperability. All required attributes shall be correct managed by a consumer.

## Silver Badge:

The listed attributes for this badge are required to manage the viewing of the platform. All required attributes shall be correct managed by a consumer.

A consumer shall at least use position, orientation and velocity data in the Spatial attribute together with the timestamp at the latest update to calculate a current position, orientation and velocity at an entity.

## Gold Badge:

The listed attributes for this badge are required for manage extended viewing and sensor computation of the platform. All required attributes shall be correct managed by a consumer.

A consumer shall use all of the provided data in the Spatial attribute together with the timestamp at the latest update to calculate a current position, an orientation and a velocity at an entity.

# References

[Ref 1] SISO-STD-001-2015, Standard for Guidance, Rationale, and Interoperability Modalities for the Real-time Platform Reference Federation Object Model, Version 2.0, 10 August 2015.