



**Integrated Project 26950 : SatSix**  
**Deliverable D3000-2**



***Emulation testbed implementation (1<sup>st</sup> Phase)***  
***Validation document***

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**Abstract:**

This deliverable describes the SATSIX emulation testbed integration and validation test plan. Each sub-system is developed, integrated and validated according to the test plan elaborated in WP3110.

This version of deliverable corresponds to the first phase of the WP3120. The scope of this document is dedicated to develop, integrate and validate following sub-systems (topics):

- \*IP QoS (HDLB)
- \*IPv6 Mobility
- \*Dynamic multicast
- \*DCCP
- \*ULE

The deliverable summarizes the overall emulation testbed architecture with the global interfaces, testbed platform implementation is described in term of sub-systems and a list of control for hardware components and software components is provided. Then, for each sub-system, integration tests sheet used as support for integration tasks and validation test sheet used as support for validation tasks are described.

**Keyword list:** Testbed, QoS, IPv6, SIP, multicast, mobility, DCCP, ULE

## Executive Summary

The emulation testbed aims to emulate a complete DVB-RCS/DVB-S2 satellite system with a strong focus on simplicity, accuracy and usability. It is dedicated to the validation and performances analysis of access and network features defined in WP2000.

This deliverable addresses and details the implementation, integration and validation of each sub-system composing the emulation testbed according to D3000-1 Emulation Testbed Implementation – Design Document”.

Validation scenarios, previously described in deliverable D3000-1, have been implemented and tested on the platform. All the components of the testbed (hardware and software) are listed in the first part of this deliverable.

With its modular design and implementation, the platform is able to emulate a complete DVB-RCS system. Configuration files allow the platform to be configured to emulate a transparent DVB-RCS system dimensioned around a single Hub, or a system using a regenerative satellite with an on-board switching matrix. A complete DVB-RCS protocol stack is implemented with the modulation/coding part emulated in real time, using pre-calculated BER files.

The performed tests are described using evaluation forms. These tests are related to the main topics addressed by SATSIX and validate the related implementations:

- DVB-RCS/DVB-S2 access layer emulation
- AAL5/ATM or ULE/MPEG2-TS
- IPv4 and IPv6 native support
- QoS framework including enhanced IP scheduling (HDLB)
- Dynamic IPv6 multicast
- Mobile IPv6 support
- Mobility-QoS coupling
- DCCP transport layer

This document will be complemented with the D3000-3 document (“phase 2 validation”) that will describe the whole validation tests, including functionalities not covered in this document (i.e. coupling between multicast and mobility, adaptive RRM, security and DDCP tests not performed in the phase 1).

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