



**IMPROVING RESILIENCE TO EMERGENCIES THROUGH
ADVANCED CYBER TECHNOLOGIES**

EGNOS/EDAS Augmentation Module

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TABLE OF CONTENTS

1	INTRODUCTION.....	4
1.1	Purpose of the Document	4
1.2	Structure of the Document	4
1.3	Acronyms list	4
1.4	Reference and applicable documents	6
2	RELEASE NOTE	7
2.1	Augmentation module functional blocks	7
2.2	Implementation Architecture.....	8
2.2.1	Dissemination of EGNOS/EDAS information:	9
2.2.2	Cloud-based augmentation service:	10
2.2	System Requirements	11
2.2.1	Performance evaluation of the implementation	11
2.3	Interfaces.....	14
2.4	Operation	14
2.5	Missing and unimplemented Features.....	14
2.6	Known Issues	15

1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

The present document is a release note for the actual deliverable 3.5, namely the “EGNOS/EDAS Augmentation Module” for advanced positioning and integrity computation, which is software module. This document reports on the design and implementation details of the software prototype.

1.2 STRUCTURE OF THE DOCUMENT

The document is organized as follows:

- **Chapter 1** is the introduction and description of the document;
- **Chapter 2** release note.

1.3 ACRONYMS LIST

AL	Alarm Limit
AM	Augmentation Module
APC	Antenna Phase Centre
ARP	Antenna Reference Point
ASQF	Application Specific Qualification Facility
ATC	Air Traffic Control
ATPL	Along Track Protection Level
C/N ₀	Carrier to Noise ratio
COSPAS-SARSAT	COsmicheskaya Sistyema Poiska Avaryinikh Sudov - Search And Rescue Satellite-Aided Tracking
CRC	Cyclic Redundancy Check
CS	Commercial Service
CTPL	Cross Track Protection Level
DAB	Digital Audio Broadcasting
EDAS	EGNOS Data Access Service
EGNOS	European Geostationary Navigation Overlay Service
EMS	Emergency Management Service
EO	Earth Observation
ESA	European Space Agency
EU	European Union
EWAN	EGNOS Wide Area Network
EWS	Early Warning System
FOC	Full Operational Capability
FTP	File Transfer Protocol
GCC	Galileo Control Centres
GEO	Geostationary satellites
GIVE	Grid Ionospheric Vertical Error

GLONASS	Global'naja Navigacionnaja Sputnikovaja Sistema (Russian GNSS)
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GSA	European GNSS Agency
GSS	Galileo Sensor Stations
HPL	Horizontal Protection Level
ICAO	International Civil Aviation Organization
IOC	Initial Operational Capability
JSON	JavaScript Object Notation
LBS	Location Based Services
MCC	Mission Control Centres
MOPS	Minimum Operational Performance Standard
NLES	Navigation Land Earth Stations
Ntrip	Networked Transport of RTCM via Internet Protocol
ORM	Object Relation Mapper
OS	Open Service
PaaS	Platform as a Service
PACF	Performance Assessment and Checkout Facility
PL	Protection Level
PRN	Pseudo Random Number (code)
PRS	Public Regulated Service
PVT	Position Velocity and Time
RAIM	Receiver Autonomous Integrity Monitoring
RDS	Radio Data System
REST	REpresentational State Transfer
RIMS	Ranging Integrity Monitoring Stations
RTCA	Radio Technical Commission for Aeronautics
RTCM	Radio Technical Commission for Maritime
RTK	Real Time Kinematic
SAR	Search And Rescue service
SARPS	Standards and Recommended Practices
SBAS	Satellite Based Augmentation System
SL	(EDAS) Service Layer
SIS	Signal in Space
SISNet	Signal in Space over Network
SL	Service Level
SoL	Safety of Life
TOW	Time Of Week
TTA	Time To Alarm
UD	User Device
UDRE	User Differential Range Error
UTC	Universal Time Coordinated
VANET	Vehicular Ad hoc NETwork
VPL	Vertical Protection Level
WAAS	Wide Area Augmentation System

1.4 REFERENCE AND APPLICABLE DOCUMENTS

ID	Title	Revision	Date
[RD01]	D3.4 Report on EGNSS Integration	1.4	13/11/2017
[RD02]	A. Favenza, C. Rossi, M. Pasin, F. Dominici, "A Cloud-based Approach to GNSS Augmentation for Navigation Services," ACM/IEEE UCC	-	2014
[RD03]	Data Access Service (EDAS) Service Definition Document (v2.0), http://ec.europa.eu/DocsRoom/documents/3985/attachments/1/translations/en/renditions/pdf	2.0	10/04/2013
[RD04]	RTCM standard 10403.3	3.3	07/10/2016
[RD05]	E.D. Kaplan and C.J. Hegarty. Understanding GPS: Principles and Applications. Artech House	2nd ed.	2006
[RD06]	CrisisLex.org, http://www.crisislex.org	-	accessed 26/01/2018
[RD07]	A. Olteanu, S. Vieweg, C. Castillo, "What to expect when the unexpected happens: Social media communications across crises," ACM CSCW		2015