



**Intelligent Transport Systems (ITS);
Vehicular Communications;
GeoNetworking;
Part 6: Internet Integration;
Sub-part 1: Transmission of IPv6 Packets over
GeoNetworking Protocols**

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Foreword

This draft European Standard (EN) has been produced by ETSI Technical Committee Intelligent Transport Systems (ITS), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The present document is part 6, sub-part 1 of a multi-part deliverable. Full details of the entire series can be found in part 1 [3].

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Introduction

The ETSI GeoNetworking protocol [7] and [i.23] is a non-IP network-layer protocol that provides geographic addressing and forwarding and belongs to the position-based routing protocols category. Applications and facilities specifically designed for GeoNetworking exploit these functionalities, for example to disseminate warning or generic information messages to geographically scoped areas. The GeoNetworking protocol satisfies the requirements of several ITS services, whose application domain is limited to networks that are disconnected from large existing network infrastructures. However, several ITS applications require the integration of ITS stations with larger networks such as private transport networks or the Internet.

In order to connect networks based on GeoNetworking to networks running the Internet Protocol (IP), which represent the majority of currently deployed large networks, it is necessary to allow GeoNetworking ITS stations to act like Internet hosts or routers. The ETSI Technical Committee ITS recognizes IP version 6 (IPv6 [8]) as the primary version of IP to be necessarily supported by ITS stations.

The present document introduces a set of mechanisms that allow the GeoNetworking protocol to transport IPv6 packets without introducing modifications to existing IPv6 protocol implementations. By deploying these mechanisms, the following two main advantages are achieved:

- 1) coverage offered by points-of-attachment to the Internet, such as road-side ITS stations, is extended by means of sub-IP geographic routing; and
- 2) IPv6 multicast traffic can be geocasted, i.e. addressed and delivered to all ITS stations currently located within a geographic area.