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THE LEGAL IMPLICATIONS OF ERRONEOUS GNSS SIGNAL, RESULTING FROM HARMFUL
INTERFERENCE

Abstract

There are two Global Navigational Satellite Systems (GNSS) in operation: The United States' Global Positioning System (GPS), the first GNSS structure and the Global Orbiting Navigation Satellite System (GLONAS) operated under the auspices of the Russian Federation. For the near future, other GNSS structures will become operational as well: Galileo which will operate under the auspices of the European Union and the Chinese system Beidou (Compass) are two more specific examples in this respect. From a technical perspective these navigational satellite systems transmit navigational data (signals) via the use of electromagnetic waves, thus serving many civilian applications on earth connected to navigation, timing and positioning.

Although certain spectrum frequencies have been specifically reserved and allocated for GNSS communication, the low strength of the said signal makes it very susceptible to Harmful Interference (HI). The sources of this vulnerability can be either intentional or unintentional. Irrespective, however, the consequences, resulting in an erroneous or missing signal, could still be catastrophic, leading to the loss of expensive equipment or even human lives in cases of car or airplane crashes and collisions.

Briefly, HI can be defined as targeted or accidental electromagnetic signal which endangers the functioning of a radionavigation service or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with the Radio Regulations of the International Telecommunications Union. On an International level, Harmful Interference (HI) is regulated under the auspices of the ITU and is illegal – irrespective of intent or potency. In most national legal systems, HI is also illegal and punishable by monetary penalties and sometimes imprisonment. How is the issue tackled on an international level, however? In addition, what would be the legal implications of interference for the GNSS operators?

Excluding any other sources of GNSS malfunction, this paper will focus on the legal consequences of HI to GNSS systems. Could the GNSS operator be held accountable for not being able to manage the interference? Could the causing agent be held accountable? Would there be a difference if the source of the interference was intentional and the causing agent denied any wrongdoing? What are the possible fora to address the question? Which legislation would be applicable when it comes to potential liabilities?

We will aim at addressing the above questions by examining the current legal framework and illustrating the complex interrelations between different players with relevant case studies.