

Vulnerabilities of LTE and LTE-Advanced Communication

White Paper

Long Term Evolution (LTE) technology has become the technology of choice for keeping up with the requirement of higher throughput in mobile communication in bands below 6 GHz. It is expected that within the next decade LTE will become the primary commercial standard. LTE is often used to broadcast emergency information in times of natural disasters and national crises and is under investigation for further end use application in government as well as military application fields.

Communication via LTE has some vulnerabilities. This drawback is a matter of concern since it is possible to completely take down the LTE network or at least partially block communication, intentionally with the help of jamming signals, or unintentionally through various forms of interference.

An example of unintentional interference issues is the frequently discussed co-existence issues with Air Traffic Control (ATC) S-band radar and Digital TV bands. The in-device co-existence challenge is also a potentially important issue with the rapid evolution of multi-standard radios.

This White Paper will focus on the vulnerabilities of LTE communication by explaining LTE jamming and unintentional interference problems, address the co-existence issues with other services, and discuss the mitigation options to build a broad perspective on the possible deployment of the LTE technology for future military and civil governmental applications.

Understanding the susceptance of new technologies to known and expected environments is critical to the adoption for defense applications