Analysis on Coexistence of 5G and Fixed Satellite Service in 3.5 GHz Band

Guntis Ancans[1], **Evaldas Stankevicius**[2], **and Vjaceslavs Bobrovs**[1]

[1]Institute of Telecommunications, Riga Technical University, Azenes St. 12-201, LV-1048, Riga, Latvia
[2]Vilnius Gediminas Technical University, Lithuania

Abstract— In 2007 the frequency band 3400–3600 MHz (3.5 GHz) was identified in ITU Radio Regulations for use by International Mobile Telecommunications (IMT) in countries of ITU Region 1. The frequency band or part of it is used by many services, e.g., fixed service, fixed satellite service (FSS), mobile except aeronautical service in Region 1. To introduce 5G evolving public cellular networks, e.g., New Radio (NR) in the 3.5 GHz band the appropriate electromagnetic compatibility studies shall be performed. The aim of this study is to evaluate the electromagnetic compatibility of mobile service and fixed satellite service for co-channel case. The theoretical and experimental evaluation methods were used in order to investigate the coexistance criteria. The obtained results identify the minimum separation distance required between the mobile service base stations (BS) and fixed satellite service earth station in order to avoid the harmful interference.