

# IW2 - Antenna Integration and Compliance Strategies for Industrial LTE and 5G Routers



## Abstract:

Westermo industrial cellular routers integrate LTE and 5G radio modules operating across defined frequency bands, requiring antennas with precise electrical and mechanical characteristics. Key metrics include low return loss ( $S_{11}$ ), high gain, radiation efficiency, and multiband support. For 5G, MIMO configurations add complexity in design and placement.

Our work shares Westermo's applied experience in antenna selection, integration, and compliance for industrial wireless systems. We present testing methodologies addressing EMC (emissions and immunity), radio certification across multiple bands, and challenges introduced by hardware changes impacting interference profiles. These insights aim to guide robust antenna-router integration strategies for reliable connectivity in mission-critical industrial environments.

## Workshop Outline:

This industrial workshop will be led by Dr. Samaneh Sadeghi-Marasht and will feature a keynote presentation on antenna requirements for industrial cellular routers. The program will include technical sessions covering three key areas: criteria for selecting antennas for LTE/5G routers, EMC testing for antenna performance validation, and design requirements for industrial applications. Each session will combine practical insights with applied methodologies, followed by interactive Q&A segments to encourage discussion. The workshop aims to provide participants with actionable strategies for robust antenna integration and compliance in mission-critical environments.





## Instructor:



Dr. Samaneh Sadeghi-Marasht is an Approval Manager based in Dublin, Ireland. She earned her PhD from University College Dublin (UCD), where her research focused on RF systems and advanced antenna design for 5G applications. Dr. Sadeghi-Marasht has expertise in RF technologies, particularly in designing and optimizing high-performance antennas. She previously worked as an RF engineer and now works as an Approval Manager, ensuring that products comply with various wireless network standards.