



The 15th European Radar Conference

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Room: N118

WTh-07

Coexistence in the Crowded Spectrum between 1 and 100 GHz

Organisers:

Christoph Fischer¹, Magdalena Letsche-Nüßeler¹

¹HENSOLDT Sensors GmbH

Abstract

In recent years, the number of frequency users has increased continuously and this trend is ongoing for several reasons: With the unbroken demand for more digital bandwidth, the evolution of communication technology towards 5G requires more radio frequency (RF) bandwidth and more frequency users are active in all bands (1-6 GHz and in the future mm-wave). New radars arise from new operational needs (e.g. sense & avoid radars, hostile fire indication, multifunctional systems). In addition, new requirements for radars, such as a better resolution in range, result in higher demand for RF bandwidth. Reliability and immunity to interference becomes more and more important. Especially in the automotive area, where the number of cars equipped with radar sensors is constantly increasing, automated driving requires a new level of reliability.

Coexistence by spectral separation is not realistic anymore in this crowded environment, as frequency spectrum is finite and rare. Caused by the dense packing of frequency channels, interference from adjacent frequencies increases and new technologies for interference mitigation become necessary. The coordination of frequency allocation is getting more and more important between technologies and beyond borders, for communication as well as for radar. Frequency users and interferers today are commonly mobile, so that a spatial separation cannot be ensured.

The aim of this workshop is to present the experiences related to coexistence and interference of different spectrum users from the fields of radar (automotive and surveillance) and communications. Technologies that allow coexistence without interference as well as intelligent frequency sharing concepts are discussed.

Programme

Coexistence of Radars and Communication

Magdalena Letsche-Nüßeler¹

¹HENSOLDT Sensors GmbH

Challenging the Interference Mitigation Effectiveness with the Tough ASIL D Requirements for Automotive Radar Systems

Martin Kunert¹

¹Robert Bosch GmbH

The Aggregate Interference from UWB Pulsed Systems into the S-band Radiolocation Band

Udo Uschkerat¹

¹Fraunhofer FHR

The Continuous Arbitrary Wave (CAW) Radar Concept

Patrik Dammert¹

¹Saab AB

The Advent of a New Radio - What to expect from 5G?

Jan Mietzner¹

¹Hamburg University of Applied Sciences (HAW Hamburg)

Cognitive UWB Radar

Christian Bräu¹

¹Fraunhofer FHR