Graduate School of Science and Technology Master's Thesis Abstract

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Thesis title	Toward Scalable LoRa-like Network :Introducing Orthogonal Code to The Physical Layer		

Abstract

Currently, LoRa suffers from scalability issues, making it still far from a feasible option for LPWAN in large deployment scenarios. During Signal Transmission, no other signal employing the same Spreading Factor should be transmit ted simultaneously, as this condition would render both signals unrecoverable. We proposed introducing orthogonal codes to the LoRa Physical layer. We demonstrated that the introduction of orthogonal codes significantly enhanced the signal recovery rate, achieving a Data Extraction Rate DER) of 99.5% for single-device scenarios and maintaining robust performance with an 85.33% DER for two devices per SF