Project: IEEE P802.15 Interest Group for Wireless Personal Area Networks (WPANs)

Submission Title: Hybrid Waveform for High-speed RoI Signaling Optical Camera Communication

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Re:

Abstract: Hybrid waveform for high-speed RoI signaling Optical Camera Communication

Purpose: To introduce the feasibility of hybrid waveform for high-speed RoI signaling Optical Camera Communication

Hybrid waveform for high-speed RoI signaling Optical Camera Communication

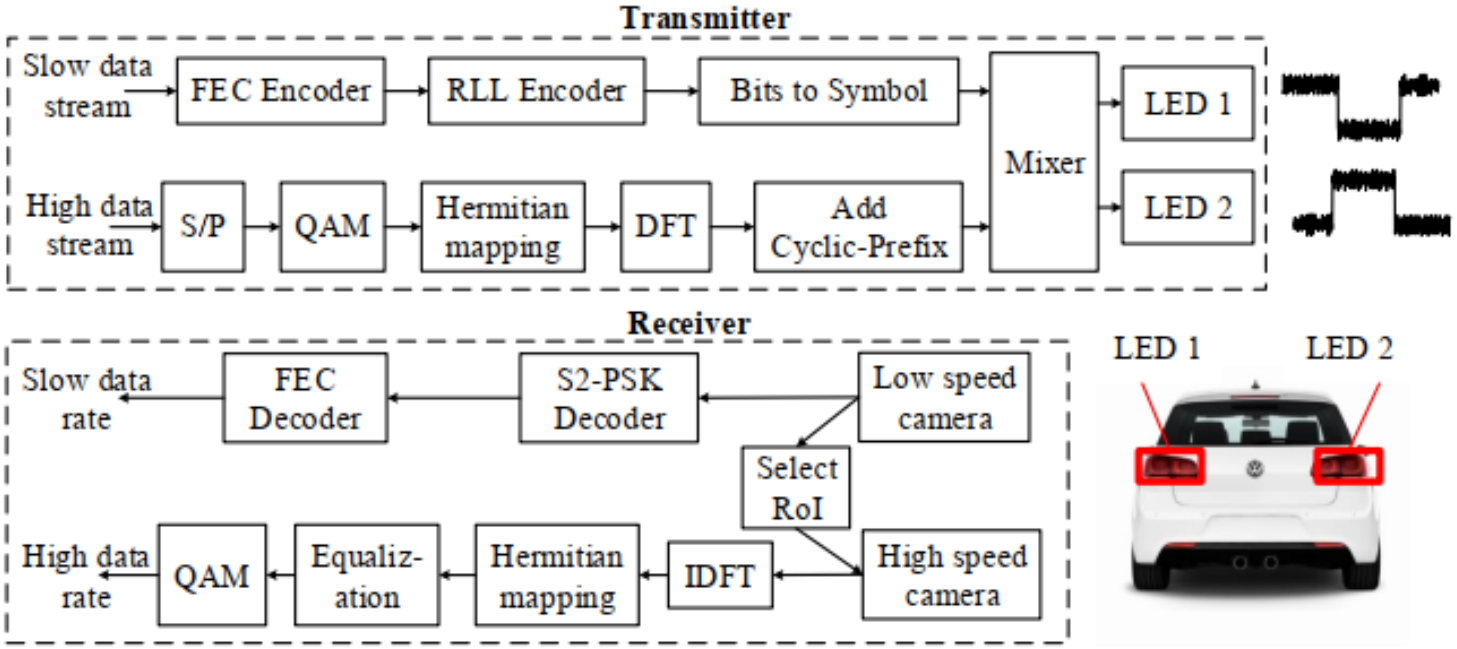
Introduction

- S2-PSK is an operating mode being standardized at IEEE 802.15.7-2018. This scheme was proposed to be more suitable with vehicular applications with light pairs in cars. Pairs of lights transmit data by controlling the phase of two waveforms, which are created by a couple of lights.

- Orthogonal Frequency-Division Multiplexing (OFDM) is a digital multi-carrier modulation scheme that is employed in broadband wired and wireless communication as an effective solution with Inter-Symbol Interference (ISI) caused by a multipath channel. Rolling Shutter OFDM scheme was proposed to take advantage of OFDM waveform for OCC system

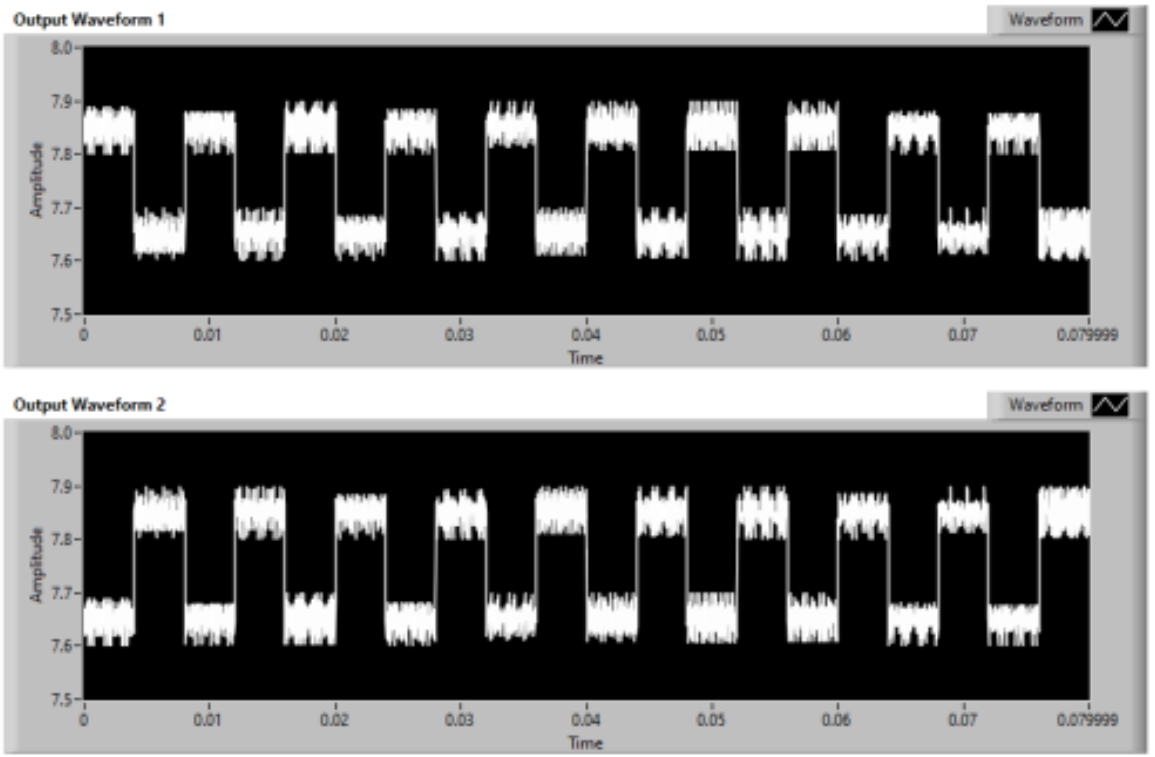
- Hybrid waveform will be proposed by combining two waveforms: S2-PSK and OFDM for Vehicular applications.

System architecture of hybrid OCC system



System architecture of proposed hybrid OCC system for Vehicular Application

System architecture of hybrid OCC system



The hybrid OCC waveform for Vehicular Application at two LEDs