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IOT Applications with Secured Light Weight Cryptography

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Abstract. OFDM has changed the way bandwidth was utilized in communication, this paper explains fundamentals of OFDM and its Multiband implementation in Ultra Wideband Technology. The most famous and attractive strategy used in wireless communication for huge transmission of data with higher rate was orthogonal frequency division multiplexing (OFDM) approach and for transmission of higher bandwidth range UWB approach is used. Major problem identified in OFDM and UWB-OFDM systems is high PAPR. The reduction of PAPR in OFDM system has been carried out with one of the most familiar approach called Partial transmit sequences (PTS). Various techniques are already presented for reducing the PAPR, some of them are, clipping, SLM, and PTS. From that PTS is considered as an efficient method because the PAPR was reduced by PTS without causing any signal distortion. In this work, PTS along with hybridization optimization algorithm named as PS–GW will be implemented to get the minimum performance on PAPR and computational complexity. The PS–GW is a combination of both the Particle Swarm Optimization (PSO) and Grey Wolf Optimizer (GWO) which search the optimal combination of phase rotational factors efficiently. A fundamental thought in this method was that the capacity of exploitation in PSO was enhanced with the capacity of investigation in GWO to create two variations in quality. The results produced by this proposed method shows that the reduction was effectively determined in both PAPR and computational complexity. The same technique is applied to multiband OFDM ultra wide band signals and PAPR is observed.

Keywords OFDM, UWB, PTS, PSO, GWO, PAPR