- The equations below were used in simulation of DDE.
- The simulation system we present intent to demonstrate encoding decoding and give a general idea of how DDE can be implemented. In the future we plan to optimize and increase the dimension of the DDE dynamics, in order to enhance efficiency and security.

$$
\begin{array}{lcl}
\text{Transmitter :} & & \\
temp & = & 2.4 \cdot \left|t_0[n]\right| - 1.3 \cdot \left|s_r[n]\right| \\
t_0[n+1] & = & -0.6 \cdot temp - 0.07 \cdot t_1^2[n] - 0.5 \cdot s_r^2[n] + 1 \\
t_1[n+1] & = & -0.1 \cdot temp - 0.8 \cdot t_1^2[n] - 0.1 \cdot t2^2[n] + 1 \\
t_2[n+1] & = & -0.07 \cdot t_1^2[n] - 0.6 \cdot t_2^2[n] - 0.07 \cdot t_3^2[n] + 0.5 \cdot s_r^2[n] + 1 \\
t_3[n+1] & = & -0.1 \cdot t_2^2[n] - 0.8 \cdot t_3^2[n] - 0.1 \cdot t_4^2[n] + 1 \\
t_4[n+1] & = & -0.07 \cdot t_3^2[n] - 0.6 \cdot t_4^2[n] - 0.07 \cdot t_5^2[n] - 0.5 \cdot x^2[n] + 1 \\
t_5[n+1] & = & -0.1 \cdot t_4^2[n] - 0.8 \cdot t_5^2[n] - 0.1 \cdot t_6^2[n] + 1 \\
t_6[n+1] & = & -0.07 \cdot t_5^2[n] - 0.6 \cdot t_6^2[n] - 0.07 \cdot t_7^2[n] + 0.5 \cdot x^2[n] + 1 \\
t_7[n+1] & = & -0.1 \cdot t_6^2[n] - 0.8 \cdot t_7^2[n] - 0.1 \cdot t_8^2[n] + 1 \\
t_8[n+1] & = & -0.07 \cdot t_7^2[n] - 0.6 \cdot t_8^2[n] - 0.07 \cdot t_9^2[n] - 0.5 \cdot x^2[n] + 1 \\
t_9[n+1] & = & -0.1 \cdot t_8^2[n] - 0.8 \cdot t_9^2[n] - 0.1 \cdot t_1 0^2[n] + 1 \\
t_{10}[n+1] & = & -0.07 \cdot t_9^2[n] - 0.6 \cdot t_1 0^2[n] - 0.07 \cdot t_{11}^2[n] + 0.5 \cdot s_r^2[n] + 1 \\
t_{11}[n+1] & = & -0.07 \cdot t_{10}^2[n] - 0.8 \cdot t_{11}^2[n] + 1 \\
\text{Receiver :} & & \\
r_0[n+1] & = & -0.8 \cdot r_0^2[n] - 0.1 \cdot r_1^2[n] + 1 \\
r_1[n+1] & = & 0.01 \cdot s_t^2[n] - 0.07 \cdot r_0^2[n] - 0.6 \cdot r_1^2[n] + 1 \\
\text{Coupling signals :} & & \\
s_t[n] & = & -0.2 \cdot \sum_{i=0}^{11} \left|t_i[n]\right| + 1 + m \cdot A \\
s_r[n] & = & -0.8 \cdot r_0^2[n] + 1;
\end{array} \tag{1}
$$