Theory of Operation of ESIM364 wirelles tranceiver

Eldes wirelles Network consist from master (ESIM364) and slave devices. All devices are connected in star type of network.

After startup master sets in which frequency channel its network will work. User can set the channel in configuration tool. Channels are: 1 – 903.09MHz, 2 – 905.09MHz, 3 – 907.09MHz, 4 - 909.09MHz . RF modulation is 2-FSK type. Slave devices will automaticaly will connect to masters frequency.

Slave detects intrusion event and sends data to ESIM364. ESIM364 sends ack to slave and additional control packets like configuration or sensitivity level change or starting of siren alarm.

We use CC1101 RF tranceiver from www.ti.com on all our wirelles devices and ESIM364. CC1101 frequency is stabilized with 26 Mhz 10ppm qrystal. Power supply of tranceiver is stabilized 3,3V. Tranceivers frequency do not depend on power supply voltage of ESIM364. ESIM364 use external JCG016 antena with 3m RG174 cable. This antenna 1/4 wave and it is omnidirectional. External antenna gain is 2dBi and cable loss is 4dB so total antena with cable gain is -2dBi.
CC1101 sends data with 150kBaud baudrate and configured to 12dBm output power.