SIM20
Short Range RF

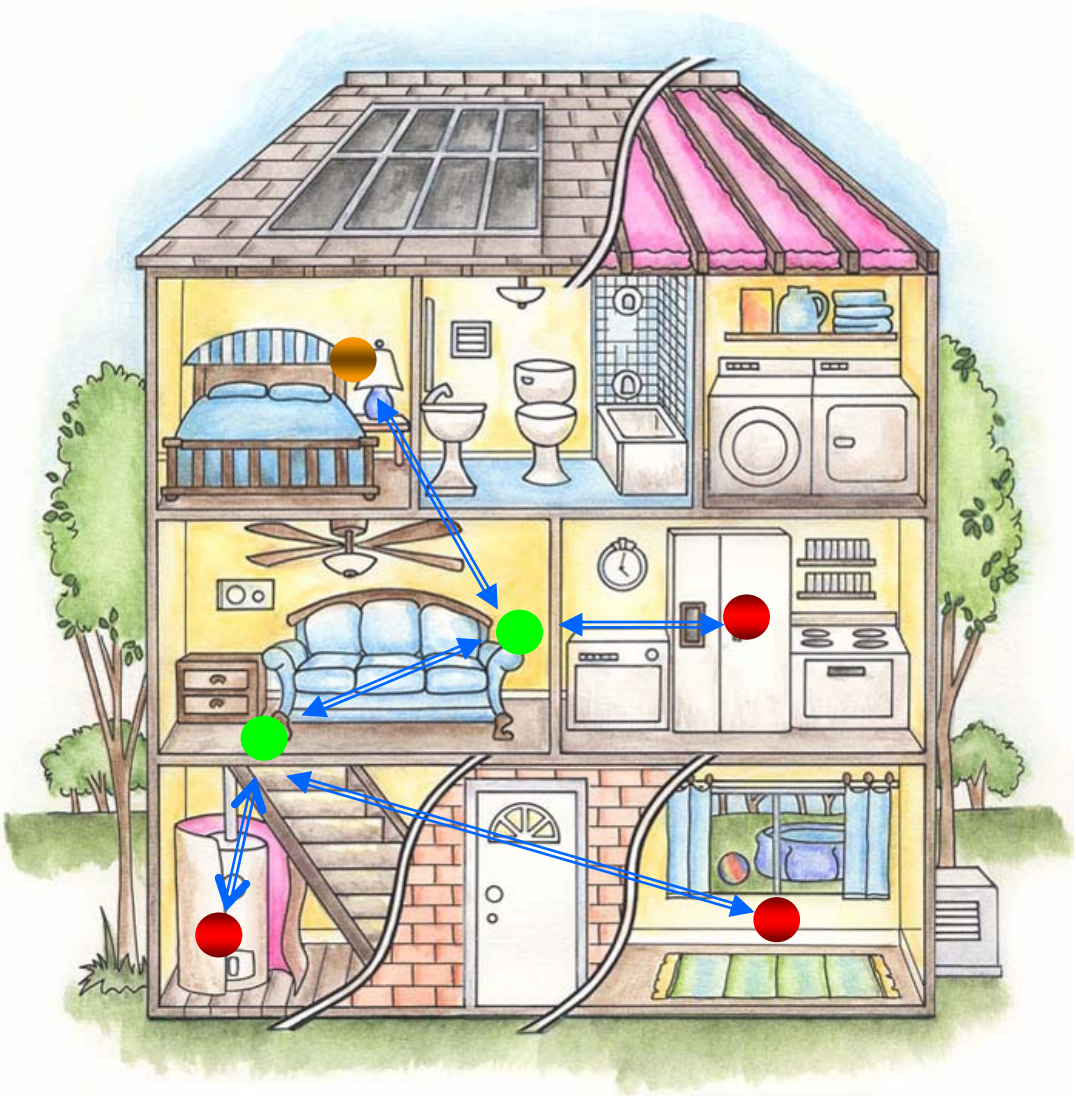
2010

House

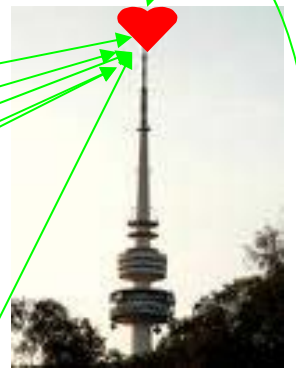
Sensor

Repeator

Center

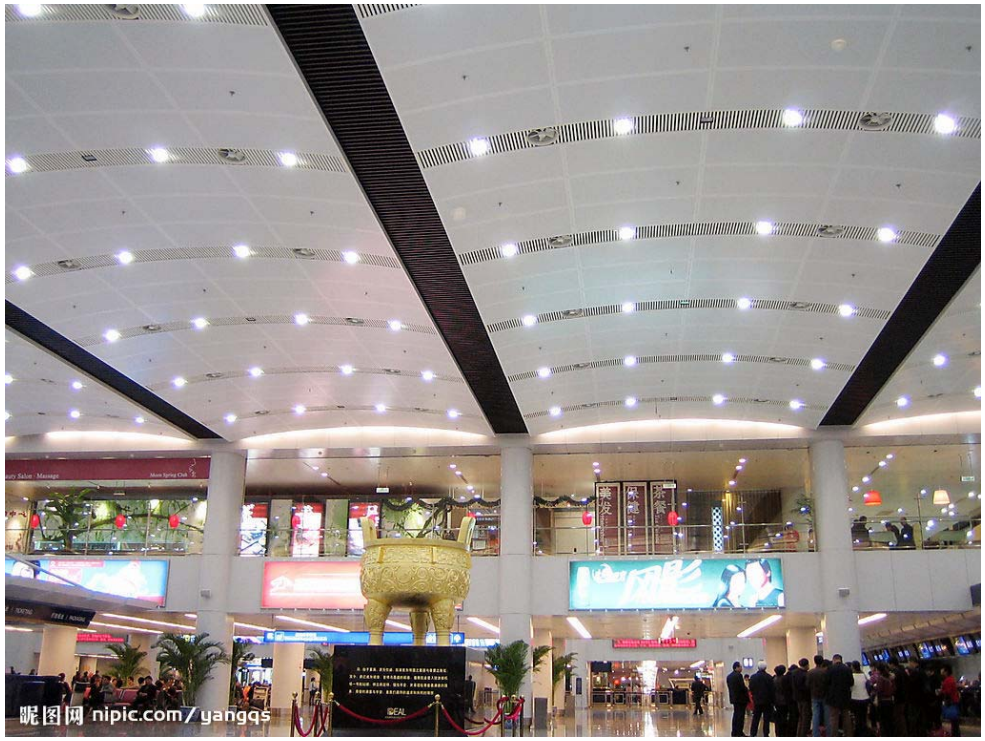


Farmer



Where is my property?

Remote configuration



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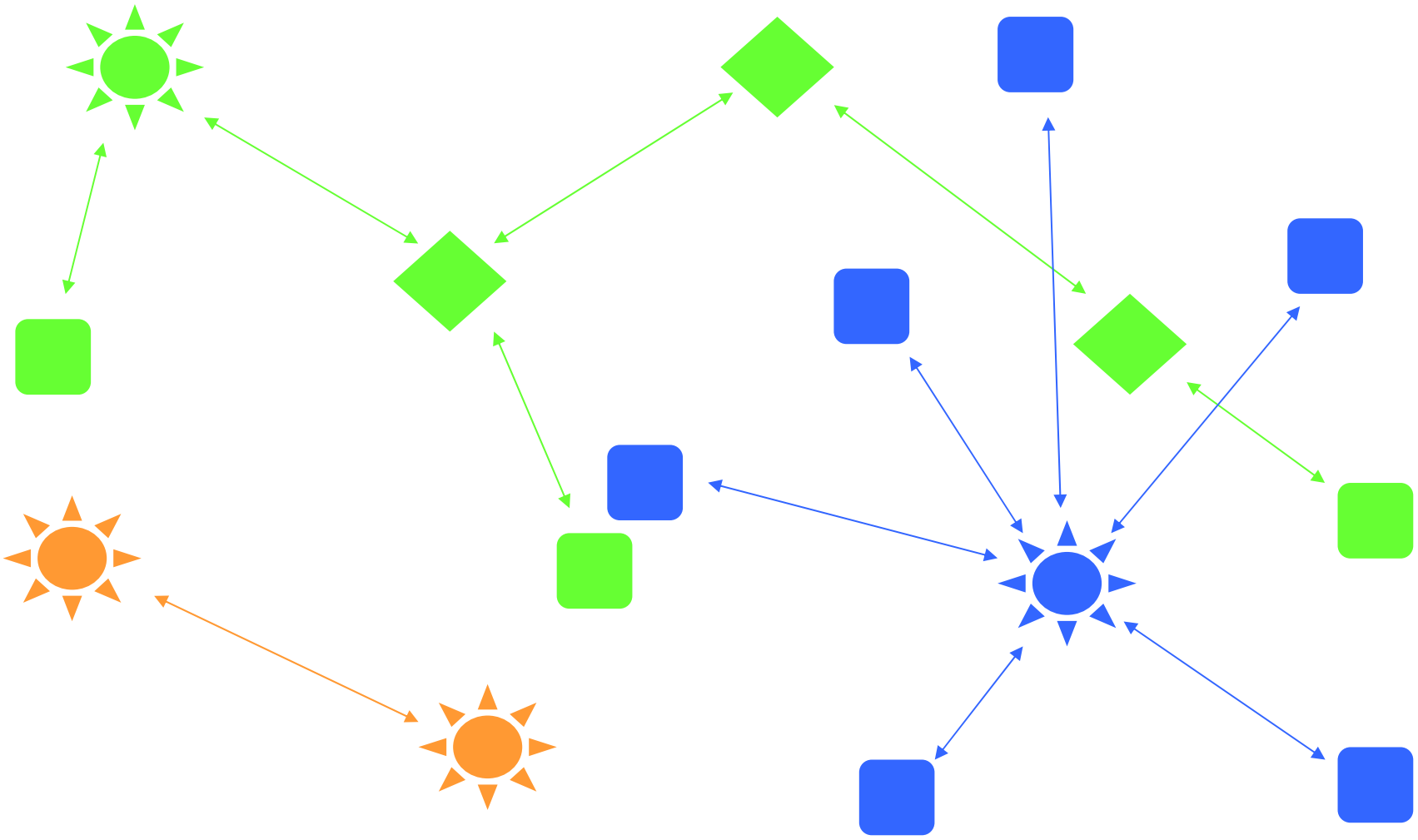
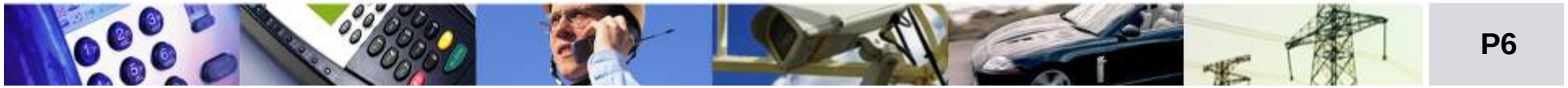
Sub-network topology



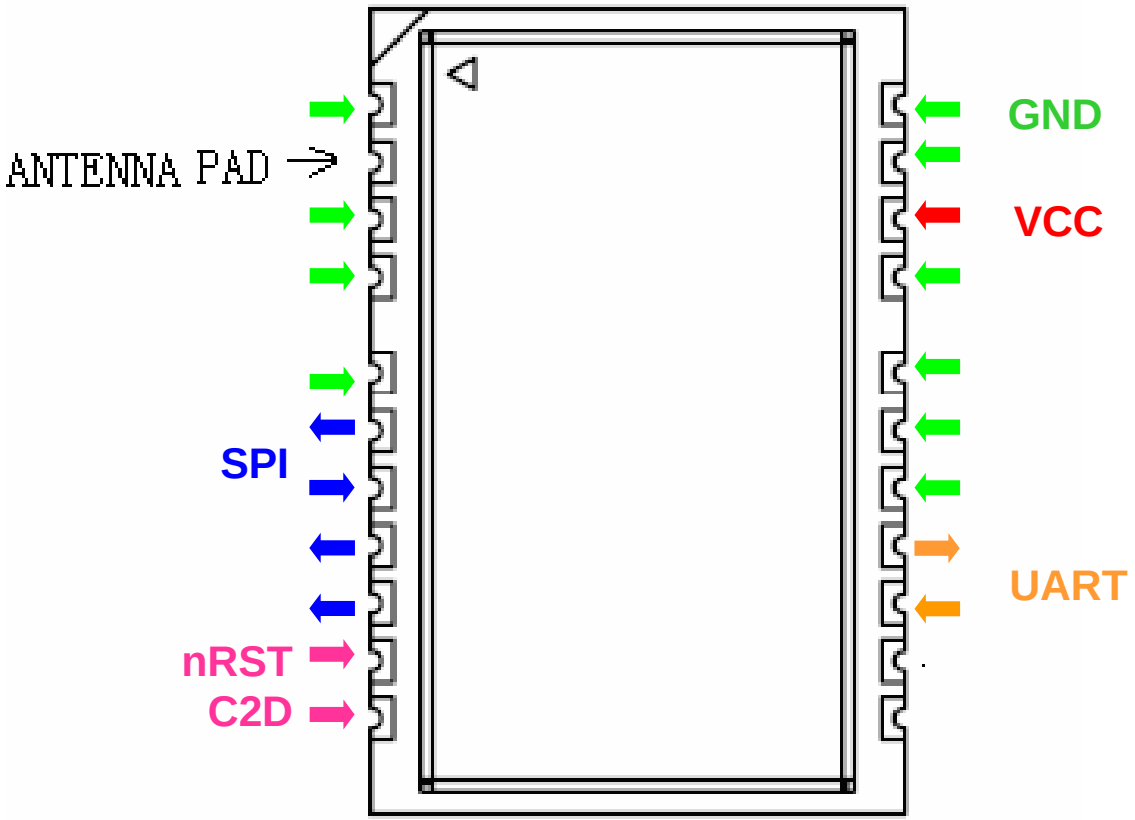
SIM20 Hardware

- **Band**
  - •434，868，915MHz
  - •Customize: 315, 470MHz
- **DataRate:**
  - •Air 2400 -- 128000bps
  - •UART 115200bps 8N1..
  - •512 bytes Buffer
- **Distance**
  - •1500m@9600pbs View in sight
- **Modulation: GPSK**

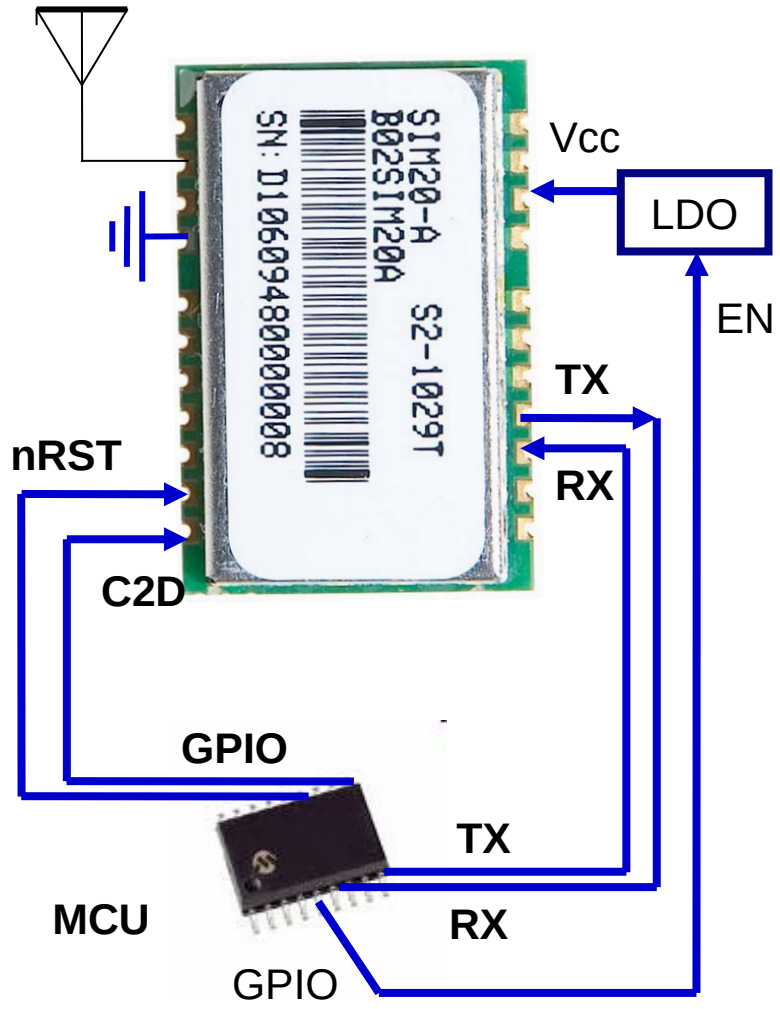
- **Interface**
  - Power 1 pin
  - GND 10 pins
  - ANT 1 pins
  - SPI 4 pins
  - UART 2 pins
- **Control**
  - C2D 1 pin
  - nRST 1 pin
- **Power**
  - •3.0 -- 3.6 V
  - •Sleep 16uA
  - •Rx 26mA
  - •Tx 35mA



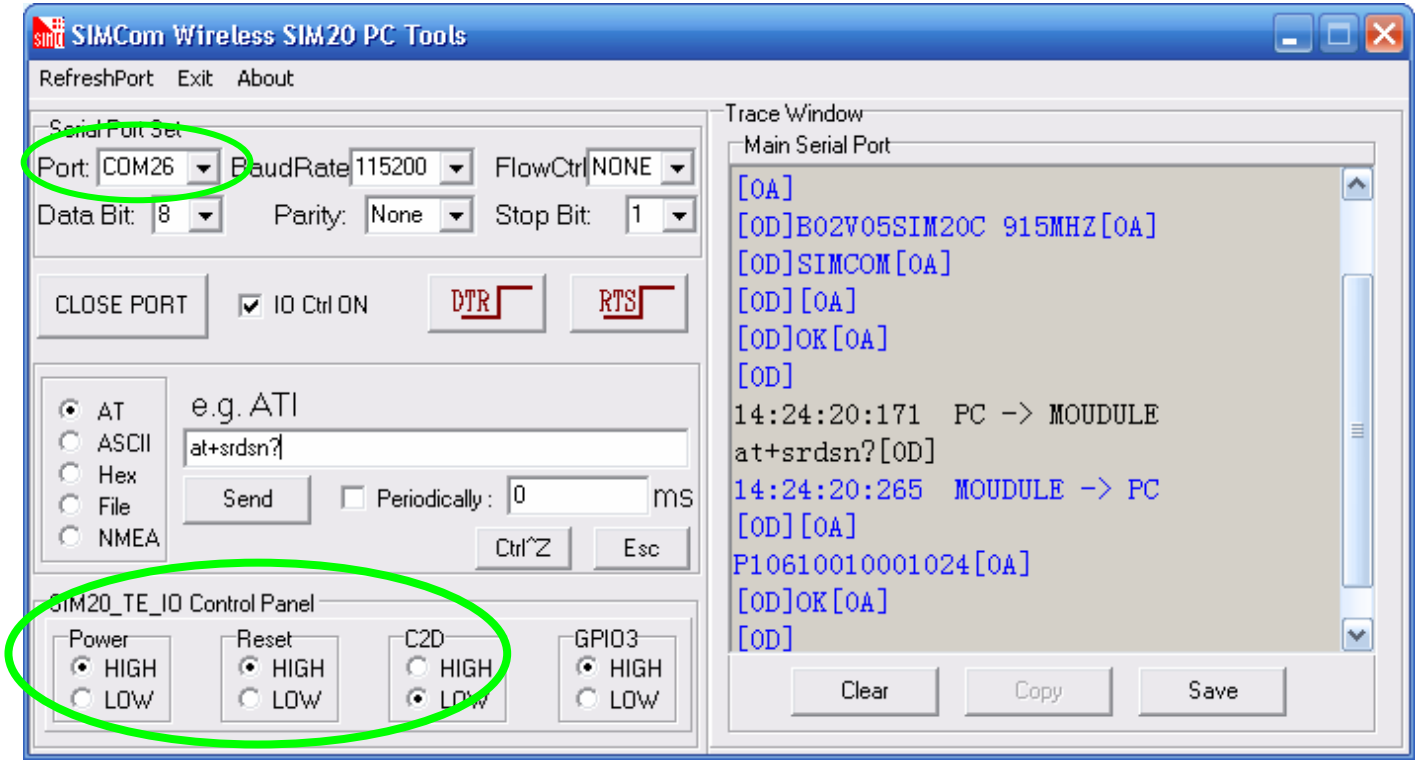
SIM20 Hardware -- Pad



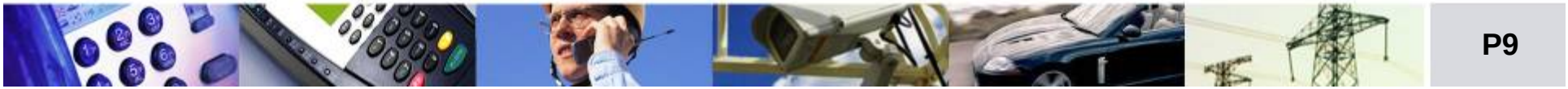
SIM20 Design guide -- Basic control



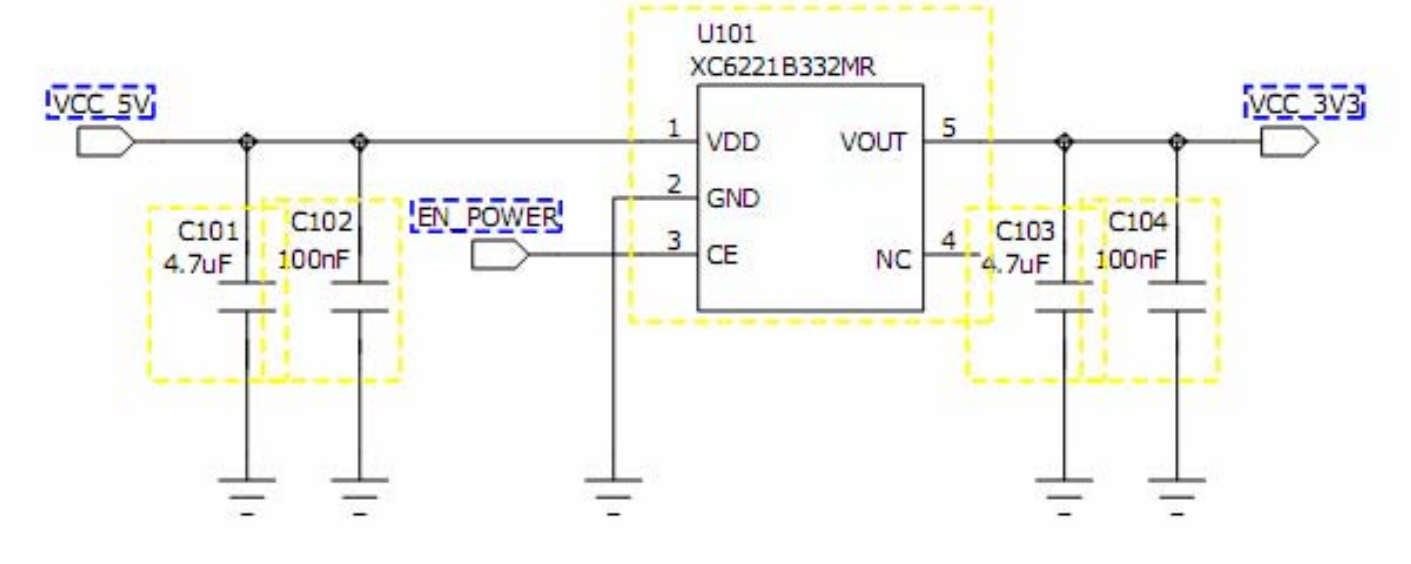
SIM20 UTE



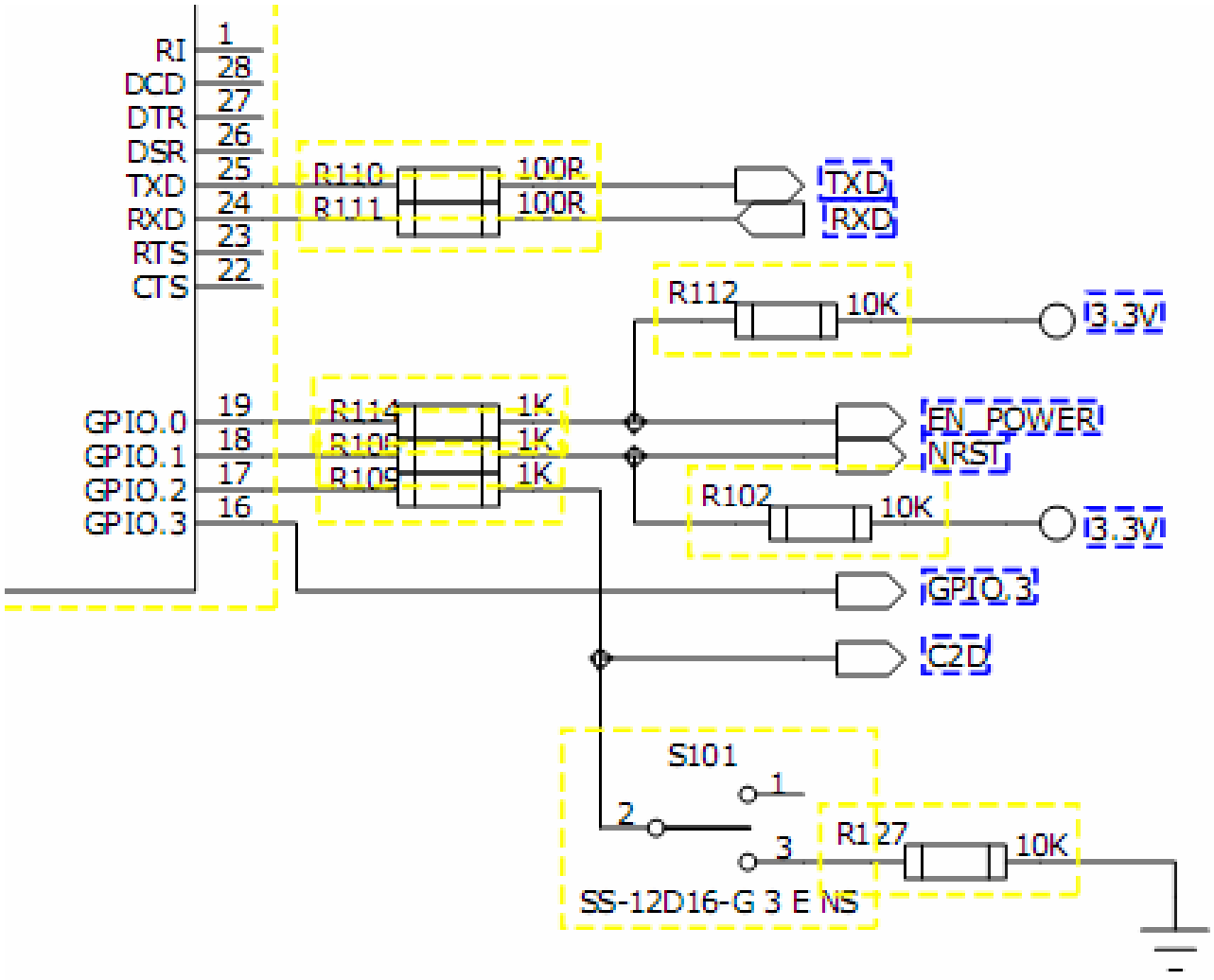
Note: This tool is licensed to SIM20 user free .
Support windows 2000/XP



SIM20A_UTE power



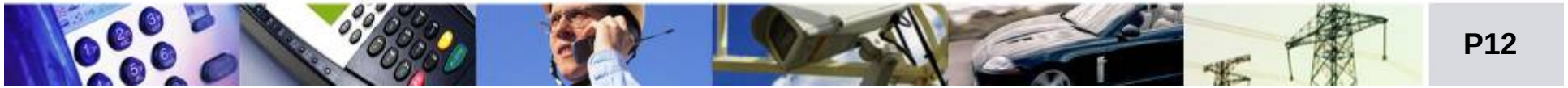
SIM20_UTE control



SIM20 Design guide -- Low power

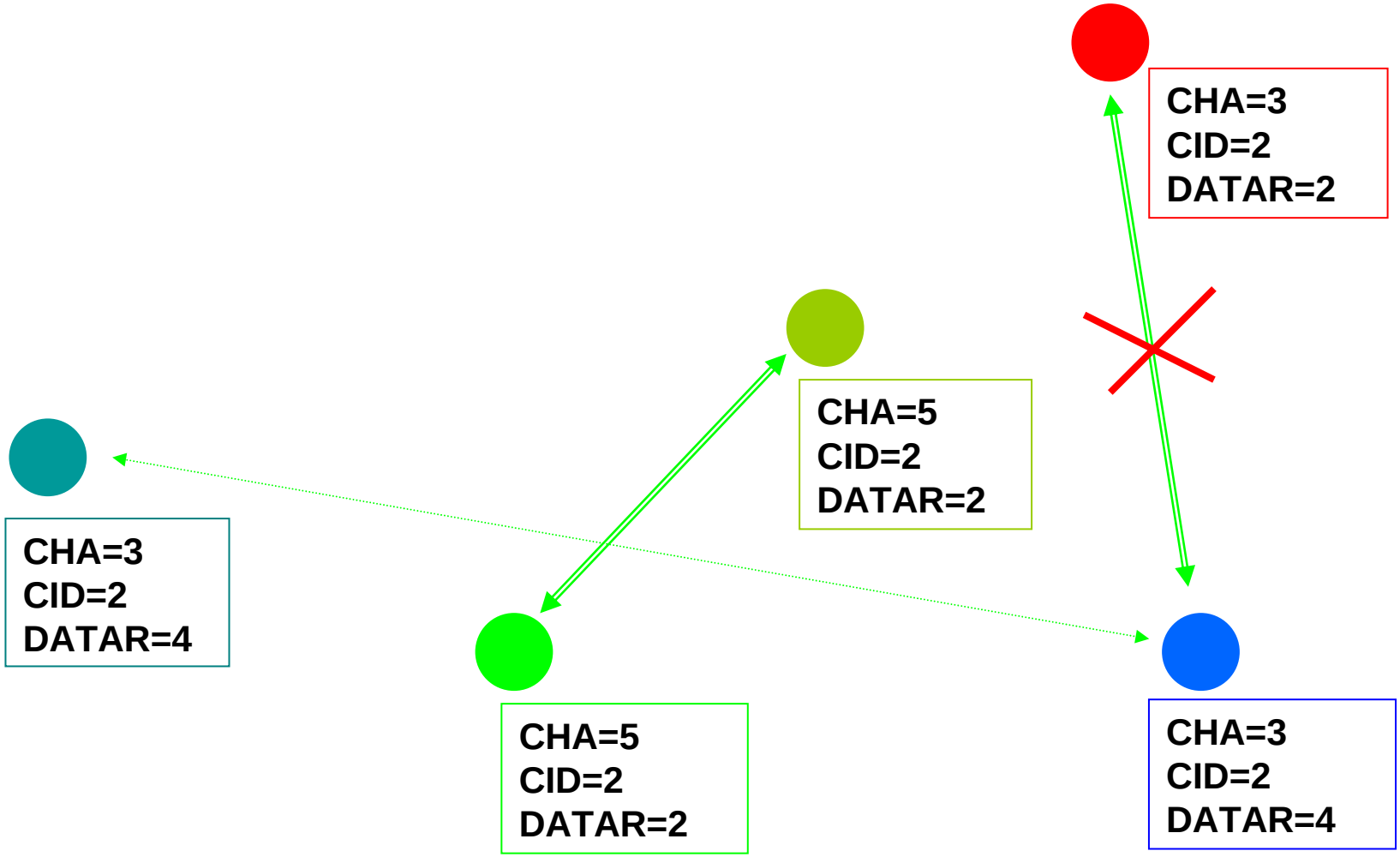
- **SIM20 power consumption (Tx, Rx)**
  - Rx ：26mA
  - Tx ： 80mA @18dBm(Peak)

- **Sleep Configuration**
  - sleep time: 1- 65534 ms
  - Sleep power consumtion： 16uA
  - Wake up by : Timer, UART
  - Action after Wake up: monitor Rx，monitor UART，Auto report SID



SIM20 sub-network

- **Decide sub-network：CHA, CID, DATAR**



AT Command & Demo

- **Decide sub-network：CHA, CID, DATAR**

- **Decide path：SID，DID，FORWARD(enable/disable)**

- **Send in Command mode (C2D LOW)**
  --+SRDSEND

- **Low power：SLEEP, EPS**
  --+SRDSLEEP (Sleep duration)
  --+SRDEPS (enable/disable Sleep mode, set wake-up mode)

- **Remote Configuration：CONREMOTE，CONF**
  --+SRDCONREMOTE (enable/disable remote configuration)
  --+SRDCONF (pre-set SN/SID of remote device to be configured)

- **Control：RESET**
  -- +SRDRESET

- **Module ID：FIRM, SN, PARAM**
  --+SRDFIRM
  --+SRDSN
  --+SRDPARAM including CHA, CID, SID, DID, DATAR, TXPWR and FORWARD

SIM20 Upgrade

- **Upgrade**
  - Bootloader
  - Firmware,
  - Protection of parameters

- **Demo**
- **Power OFF --> C2D pull down --> Power ON --> Boot menu --> Select“ 1” --> Select right firmware, "B02V01SIM20C.HEX" -->Module auto restart --> If the firmware is send from module , Upgarde successful.**

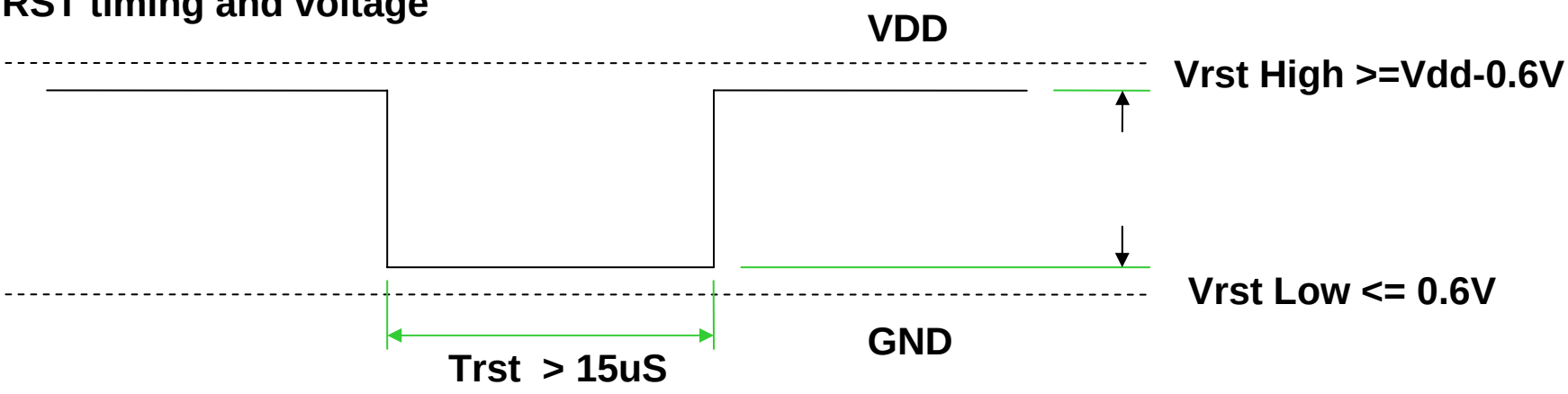
- **What happened if upgrade fail? SIM20 will re-enter bootloader till a success upgrade**

SIM20 Others

- Un-used pin：left open

- AT+SRDRESET =1 Reset after 1s without change any pre-set parameters
- AT+SRDRESET=0 Reset after 1s， SIM20 parameters set to default
- All AT command send to SIM20 should be finished by "RETURN" (ASCII HEX = OD)

nRST timing and voltage



Highlight

- **Reduce cost**
  - Reduce complex of using RF, 1 comunication port + 3 GPIOs
  - Innovation AT command for easy programming
  - No rental as Celluar
  - Using 3.0 - 3.6V power , easy for design
  - SMT with a very small size @ 21x13.8x2.6mm，saving cost on PCB
- **More flexibility**
  - Support Repeat/Forward, more choice to setup sub-network in complex enviroment
  - wake up choice
  - Full control on each parameters
  - Data mode & Command mode selected by one pin (C2D)
- **High performance**
  - Sensitiviy -118db , bi-diretion , half-duplex
  - 1500m@9600bps
  - Working temperature: -30°C to 80°C
  - Full rang: 434MHz, 868MHz, 915MHz
  - Low power consumption: 16uA @ sleep, 26mA @ Rx, 35mA @ Tx(RMS)

Thanks