ARAFE PC Microcontroller Testing

Prepare for Testing

* Jumper together the leftmost pins of J2 (powered externally)
* From the ARAFE slave tester coax, split the coax cable through two micro-grabbers, and connect the red (+15V) to one of the two left pins of J1, and the black (GND) to one of the two right pins of J1
* Turn the power on
* Launch a tera-term port (a serial COM3 enhanced port)

12V Line Testing

* Start by probing pin 1 of J4-7, ensure they are all grounded to start
* Toggle 12V lines for each of the four channels (0->3), check each in sequence to ensure they go high when activated and go low when turned off

Attenuator Commands Testing

* Issue a programming command (send an attenuator setting to a signal or trigger channel)
* Going to probe J4, J5, J6, and J7
* Check the data pins (5 and 11) for every channel
  + Should see something like the SI line in the timing diagram below
  + There should be a high bit at the end of the bit train (A7)
  + Bits D7-A6 should all be low
  + The first bits should be a combination of low and high
  + Should see the same command on every data pin, no matter the command or channel to which the command was issued
* Check the CLK pins (7 and 13) for every channel
  + Should see 16 pulses on every pin, no matter the command or channel to which the command was issued
* Check the LE pins (6 for signal and 12 for trigger) for every channel, both signal and trigger
  + Should see one bit after the last clock bit (see diagram)
  + This bit should be channel specific, so issuing a command to signal channel 0 should only generate the LE on sig chan 0, and no other pin. You should verify this by issuing signal and trigger commands to other channels and make sure the pulse goes away

The following should be the bit pattern (from RFSA data sheet page 14):

