2/28/2016 Pete Visit

Switch Testing: Usual Synthesized Sweeper and Spectrum Analyzer set up. There is no DC coming out of the signal source, which is good, because that could lead to biasing the RF signal. Purely AC. This is caused by capacitive coupling at the port, causing all DC to be dissipated there. The switch is not drawing any current, or it is just hard to read because the current should be 1.4 mA anyway. Good testing practice is to measure what is actually coming out of sources and bring it down from high voltage to low voltage. Control voltage should only draw 1 mA. Output switches at 3.3 volts. It is switching right at 2.9 volts, so the FPGA board should be able to switch this. Now testing the other side. So right at 3.2 volts, the level jumps up, however it is borderline with our FPGA voltage. (Make sure to check the FPGA voltage) There is some cable loss, which makes sense why the spectrum analyzer isn’t perfect. Make sure you are grounded before working with the electronics. So the switch from the actual component housing is working. Now for the assumed “bad” switch testing. High loss from RF Com into RF 2. No switching of the state. High loss no matter what the control voltage was. Same situation with RF Com into RF 1. Conclusion: The switch will not switch between states, only stays “low”. Very high loss between the ports, regardless of the control voltages. (These were all for the C011). For the same setup with the HMC – C058, same situation, except much better attenuation. RF Com to RF 1 is not switching and stays in high loss as voltage increases. RF Com to RF 2 does switch from high to low as the voltage increases.

FPGA Switching Logic Demo: Using the multimeter to test the voltage coming out of each pin. Switch state is LOW when it is ON. Reads 3.3 volts when switch 5 is switched LOW. All must be in high state for reset back to 0 volts. Make a table to show what physical outputs actually go LOW writing down the name of the pin (for Olivier).