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| Test Writer: Jeremiah Franke | | | | | | | | | | | | |
| Test Case Name: | | | | | RF CPU Integration Test | | | | | Test ID#: | | RFCPU-I-1 |
| Description: | | | | | Test that the output of the ATMEGA 328 when integrated with the LT5538 RF chip on its ADC is a high signal only when the RF chip is supplied with a 410 to 510Mhz radio signal. | | | | | Type: | | Black Box  White Box |
| Tester Information: | | | | | | | | | | | | |
| Name of Tester: | | | Jeremiah Franke | | | | | Date: | | | 12/07/2014 | |
| Hardware Ver: | | | 1.0 | | | | | Time: | | | 3:00pm | |
| Setup: | | | | | | | | Have a frequency generator. Make sure to have power going to the RF chip and ATMEGA 328. Have a capacitor between the power source and RF chip and ATMEGA. Have a voltmeter for measuring output of the ATMEGA. Ground the RF chip, ATMEGA, and power source as appropriate. Wire the RF chip to the ADC input port of the ATMEGA 328. | | | | |
| Step | Action | Expected Result | | Pass | | Fail | N/A | | Comments | | | |
| 1 | Compile RFTest.c in /working direcory | No warning generated by IDE. | | Pass | |  |  | | Compiled correctly. | | | |
| 2 | Download compiled file to Atmega. | File downloaded successfully. | | Pass | |  |  | | File moved to Atmega successfully. | | | |
| 3 | Run the downloaded file. | No smoke. | | Pass | |  |  | | Atmega is running the current program and is able to be debugged. | | | |
| 4 | Hook 410Mhz output from frequency generator to frequency input on RF chip. | High signal greater than .8v is read from output pin 7 of the ATMEGA. | | Pass | |  |  | | Frequency is at the rated range and the RF circuit outputs .9v. | | | |
| 5 | Change frequency generator to 420Mhz. | High signal greater than .8v is read from output pin 7 of the ATMEGA. | | Pass | |  |  | | Frequency is at the rated range and the RF circuit outputs .9v. | | | |
| 6 | Change frequency generator to 440Mhz. | High signal greater than .8v is read from output pin 7 of the ATMEGA. | | Pass | |  |  | | Frequency is at the rated range and the RF circuit outputs .89v. | | | |
| 7 | Change frequency generator to 460Mhz. | High signal greater than .8v is read from output pin 7 of the ATMEGA. | | Pass | |  |  | | Frequency is at the rated range and the RF circuit outputs .94v. | | | |
| 8 | Change frequency generator to 480Mhz. | High signal greater than .8v is read from output pin 7 of the ATMEGA. | | Pass | |  |  | | Frequency is at the rated range and the RF circuit outputs .87v. | | | |
| 9 | Change frequency generator to 500Mhz. | High signal greater than .8v is read from output pin 7 of the ATMEGA. | | Pass | |  |  | | Frequency is at the rated range and the RF circuit outputs .88v. | | | |
| 10 | Change frequency generator to 510Mhz. | High signal greater than .8v is read from output pin 7 of the ATMEGA. | | Pass | |  |  | | Frequency is at the rated range and the RF circuit outputs .84v. | | | |
| 11 | Change frequency generator to 530Mhz. | Low signal less than .8v is read from output pin 7 of the ATMEGA. | | Fail | |  |  | | Frequency is at the rated range and the RF circuit outputs .85. | | | |
| 12 | Change frequency generator to 390Mhz. | Low signal less than .8v is read from output pin 7 of the ATMEGA. | |  | |  | N/A | | Has not been tested at this time. | | | |
| Overall test results: | | | | Fail | |  |  | | The RF circuit is picking up frequencies right out of the 510MHz range that is promised by the RF filter. This is still in the acceptable range of the user. | | | |