

Worst case scenario:

The worst case scenario to cause the largest transmit duty-cycle is the MX7 by itself on an 802.11 RF-network uploading a large file through the RF network.

Test condition:

MX7 operating by itself on an 802.11 RF-network uploading a 5MB-file through the RF network.

Results:

Figure 1 shows an oscilloscope capture of the current into the radio for 100ms. This 100ms time period is representative of the entire time to transfer the 5 MB file. Each current spike above 400mA indicates the time when the MX7 is transmitting.

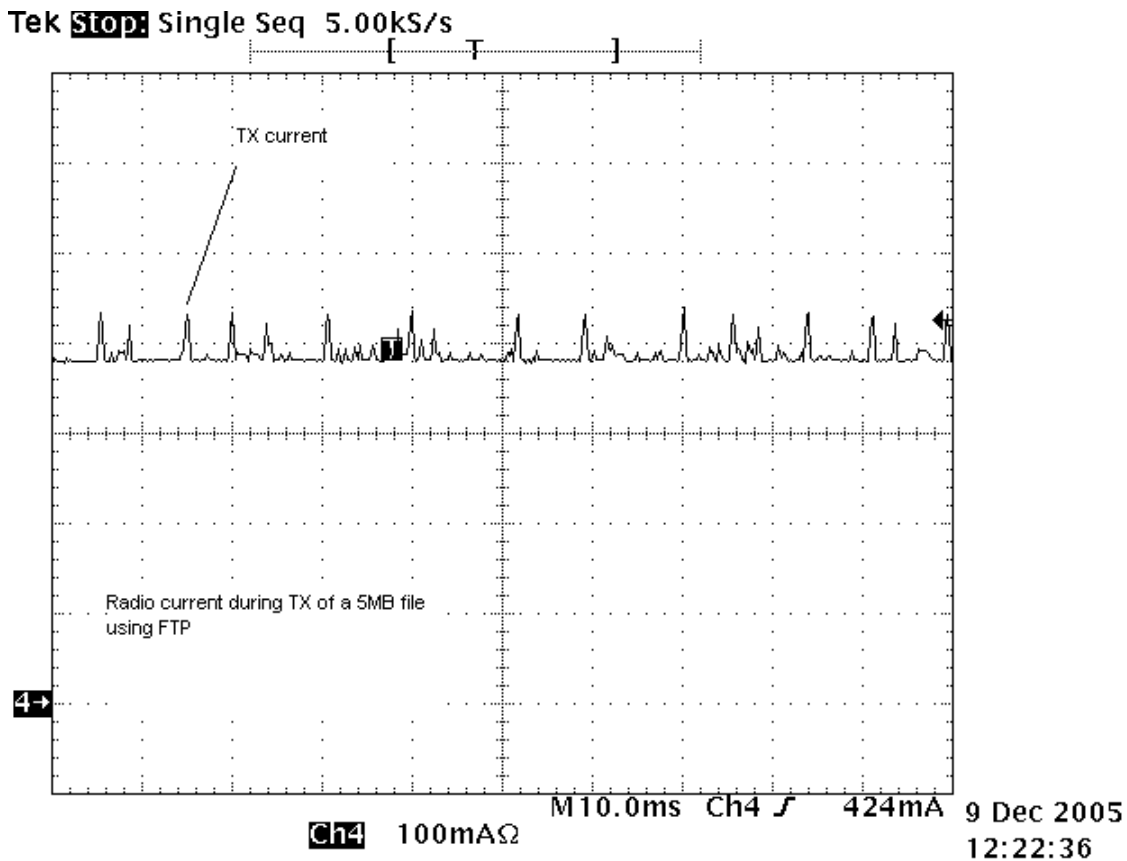


Figure 1: 100ms capture of Current into the Radio

Zooming in on any particular 10ms region (see Figure 2) shows that due to the 802.11 protocol, IP protocol, processing and throughput of the MX7 results in a periodic event occurring every 7.7ms.

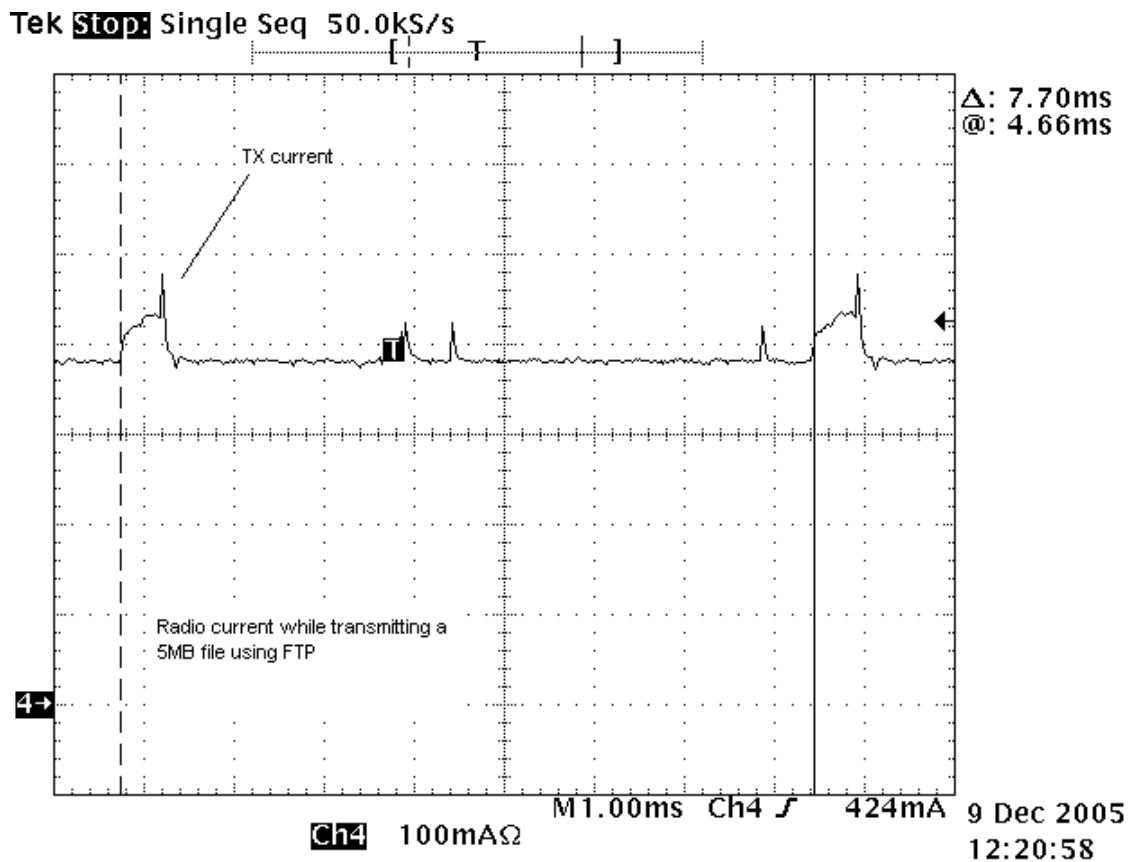


Figure 2: 7.7ms Periodic events

Figure 3 shows that there is a 500us transmission that starts the 7.7ms period. The smaller three pulse durations are from left-to-right 250us, 100us and 100us. The resulting total-transmit time for the period is 500us + 250us + 100us + 100us or 950us.

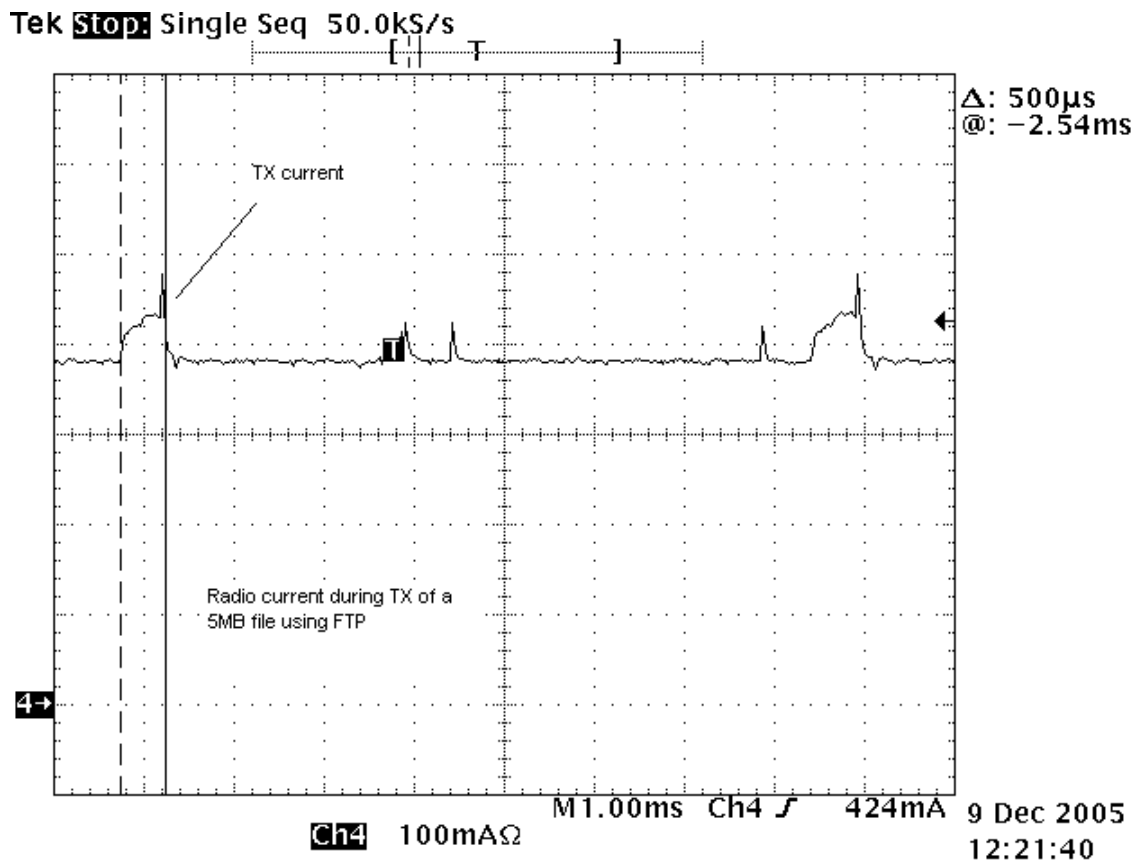


Figure 3: Transmission durations

Conclusion:

Figures 1 through 3 demonstrate that due to the periodic nature of this scenario, the worst case transmit duty-cycle is 0.950ms/7.7ms or 12%.