

### **Worst case scenario:**

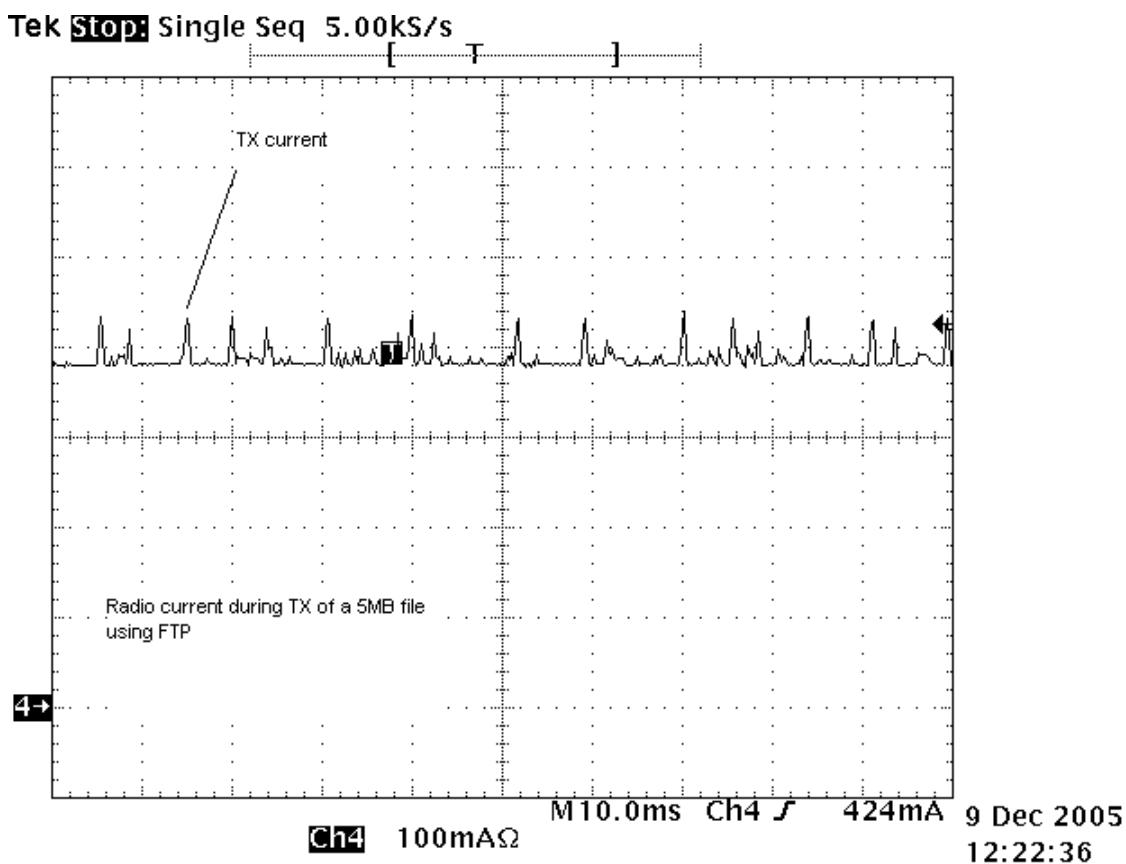
The worst case scenario to cause the largest transmit duty-cycle is the MX7 by itself on an 802.11 RF-network uploading a large file through the RF network.

### **Test condition:**

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

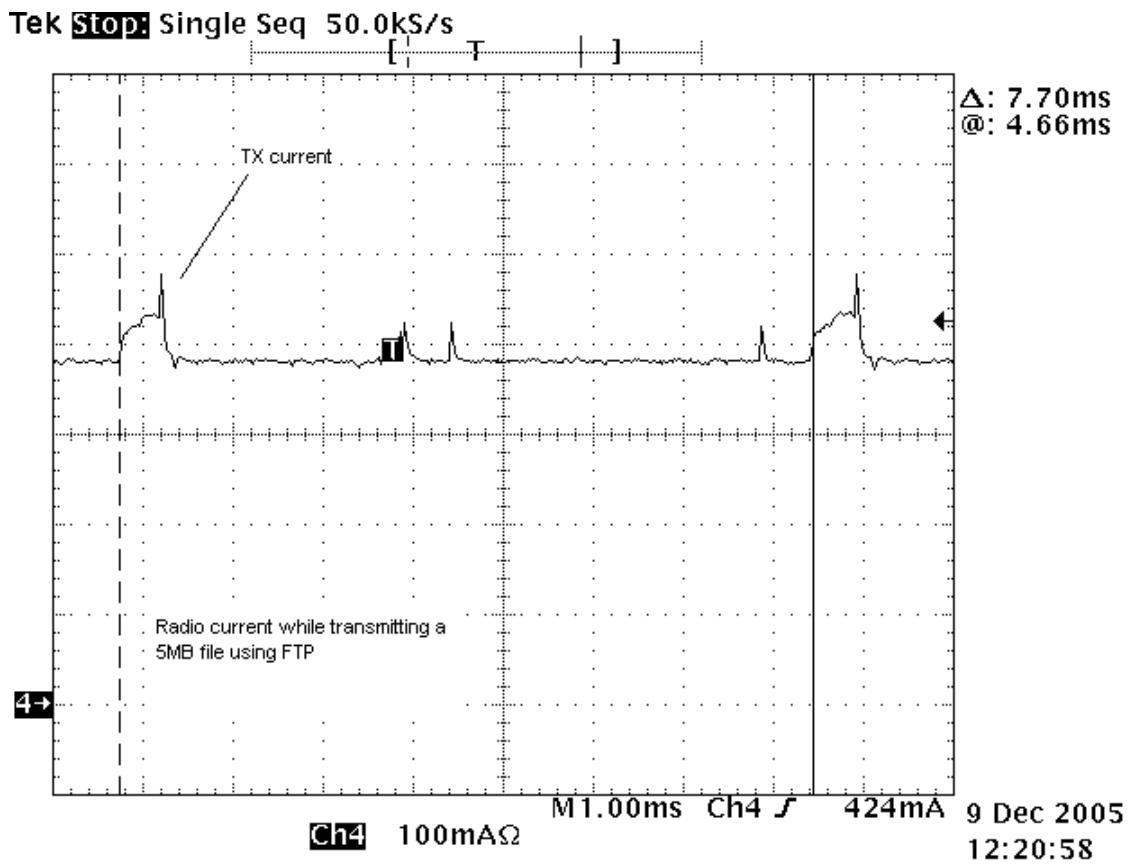
### **Results:**

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.



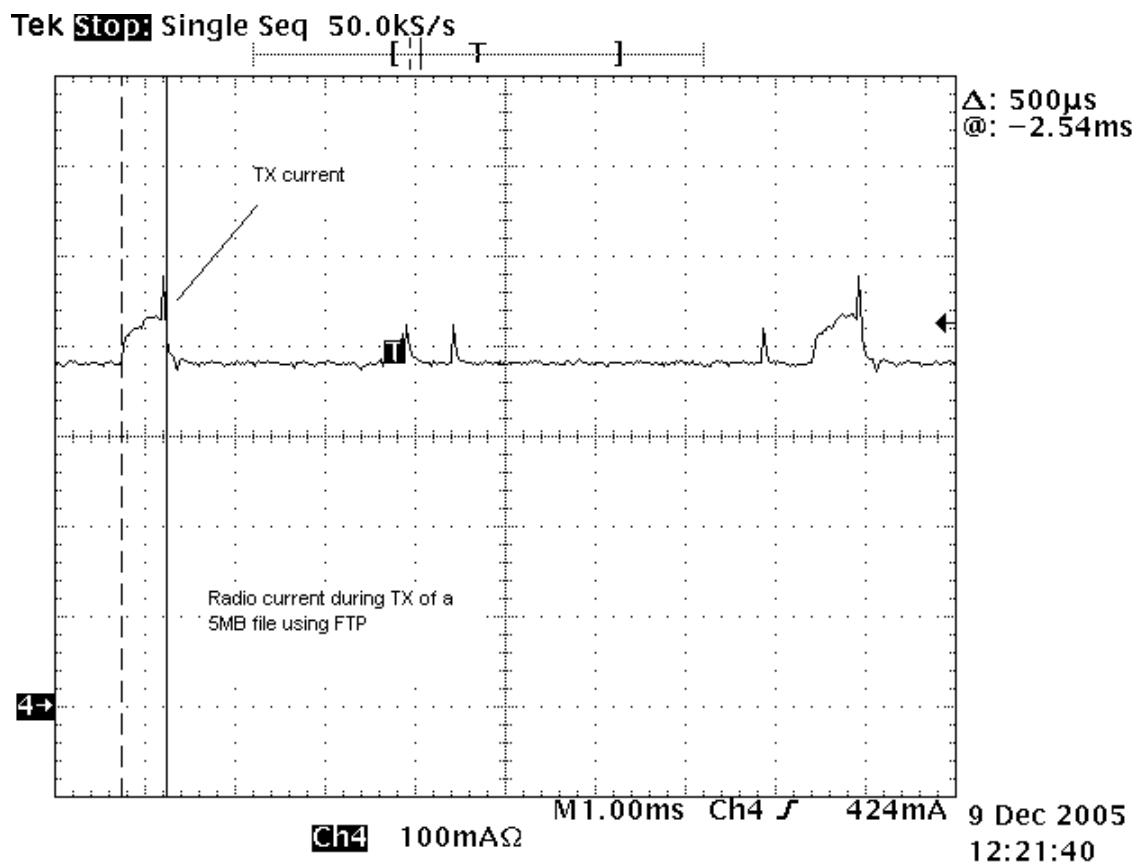
**Figure 1: 100ms capture of Current into the Radio**

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%.