

#CS01130 FCC ID#: KXU-MBTX

**RF Technologies, Inc.
Mother Baby Transmitter
317.8 - 318.2 MHz Transmitter**

Response to Item 4

In regards to the questions on the relaxation factor calculations in report #303443-Tx, the 2.16 ms should have been updated to 5.42ms and was not, due to an oversight on our part. The 2.16ms calculation for worst case on time was based on information provided to us, initially, on the 'Legacy format' protocol which I will describe later. After actually measuring the EUT, and discovering that we exceed the characteristics of the legacy format, the protocol document (see attached) was provided by RF Tech, and the worst case was re-examined and determined as a different format: the 'Long Format'. The re-examination never made it into the report.

Please refer to the attached document from RF Technologies for the definitions of the bit symbols. The formal treatment of the bit protocol for relaxation calculations is as follows:

Legacy Format (Source of 2.16 ms)

PSSL dddd dddd DAbB cccc = 20 bits
1111 xxxx xxxx 0x0x xxxx
1111 1111 1111 0101 1111 = 18 bits of 1's

Each bit = 300 microseconds in length, Logic 0 = 300 microseconds of low, Logic 1 = 120 microsecond high, 180 microseconds low.

18 bits x 120 microseconds high = 2.16 ms (hence -33 dB relaxation truncated to the 20 dB maximum allowable relaxation)

The Long Format (NEW WORST CASE, based on pages 10 and 11 in RF Tech document)

PS L TTTT m pppp pppp m CMILEF m OX ff m qqqq qqqq cccccc
111x xxxx 1 xxxx xxxx 1 x1xxxx 1 xxxx 1 xxxx xxxx xxxxxx
1111 1111 1 1111 1111 1 111111 1 1111 1 1111 1111 111111

Except for the Preamble and Start bit, Each bit = 300 microseconds in length, Logic 0 = 300 microseconds of low, Logic 1 = 120 microsecond high, 180 microseconds low.

Preamble P = 80 microsecond high, 220 microseconds low.

Start Bit S = 420 microsecond high, 180 microseconds low. (shown as a 2-bit wide character)

Worst case 'On time' = 80us + 420us + (120us x 41 bits) = 5.42 ms (hence -25 dB relaxation truncated to the 20 dB maximum allowable relaxation)

As evident from the calculations above, both formats allow the 20 dB relaxation to be used. I will have Teresa update the relaxation factor page and re-submit the report with the corrected page.

Please review Test Report Number 303443TX