

November 19, 2002

To: Mr. William H. Graff, American TCB, Inc.

From: Greg Snyder, Washington Laboratories, Ltd.

RE: Transportation Safety Technologies, Inc.

FCC ID: NVX-TST-RFT210

## **Revised Duty Cycle Calculation**

### **Discussion:**

The attached plots and the following discussion and calculations are used to show that the worst case duty cycle was tested for the Transportation Safety Technologies transmitter. These calculations correct the duty cycle calculations that were used in the Test Report based on normal operation. The test report data has not been changed since the new calculated duty cycle is less than the duty cycle calculated for the Test Report. Additionally, the unit used for testing had a worst case duty cycle as repetitiveness of the signal was much greater than in actual use.

### **New Duty Cycle Correction:**

Based on the new duty cycle plots obtained in the normal mode, the EUT would have a worst case on time of 27.36ms. This is calculated as follows:

34 narrow pulses at 300us each

33 wide pulses at 520us each

$$(33 \times 520\text{us}) + (34 \times 300\text{us}) = 27.36\text{ms}$$

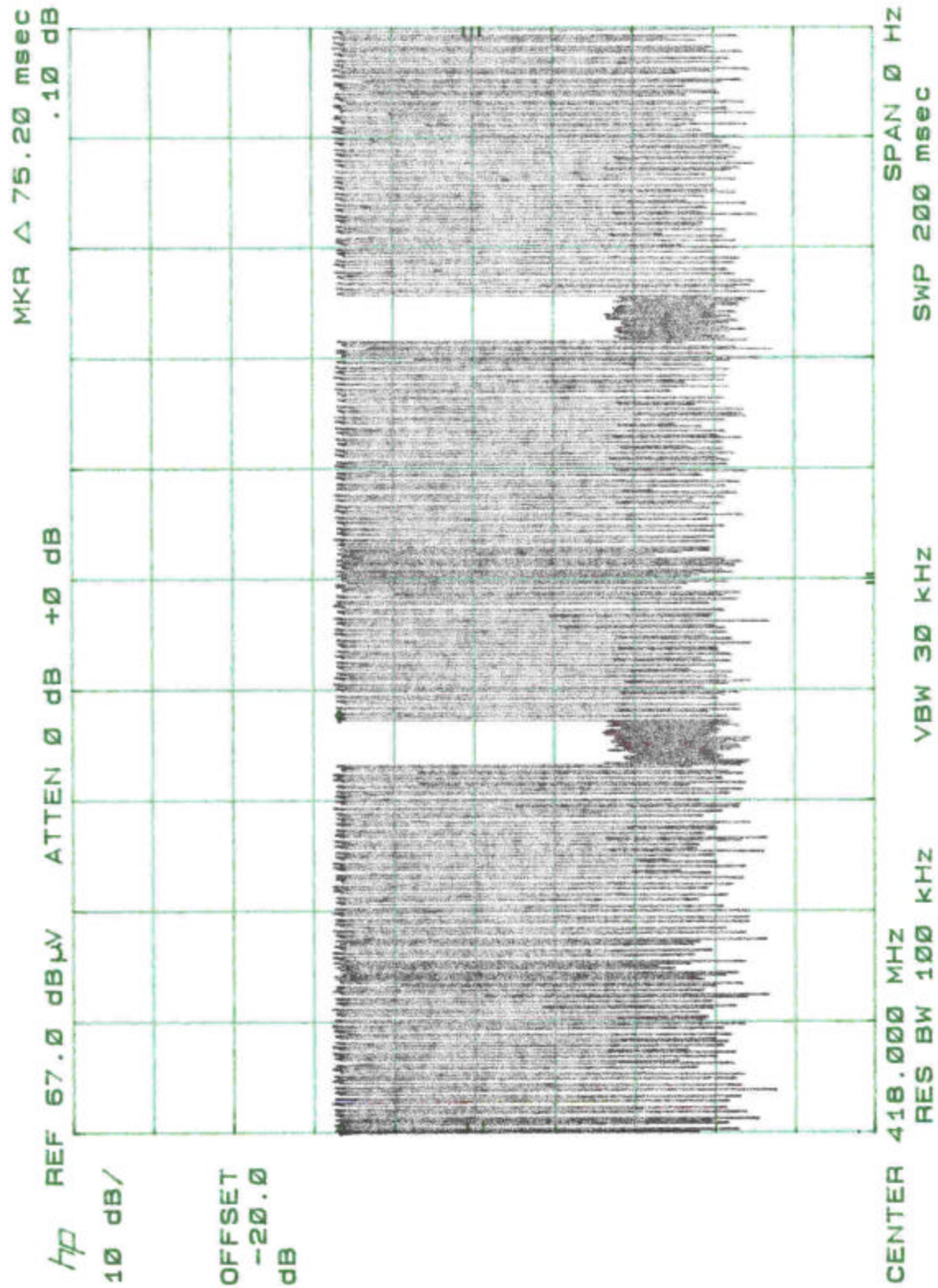
From the 200ms plot the length of a single pulse train is 75.7ms.

Using this data the new Duty Cycle Correction is calculated to be:

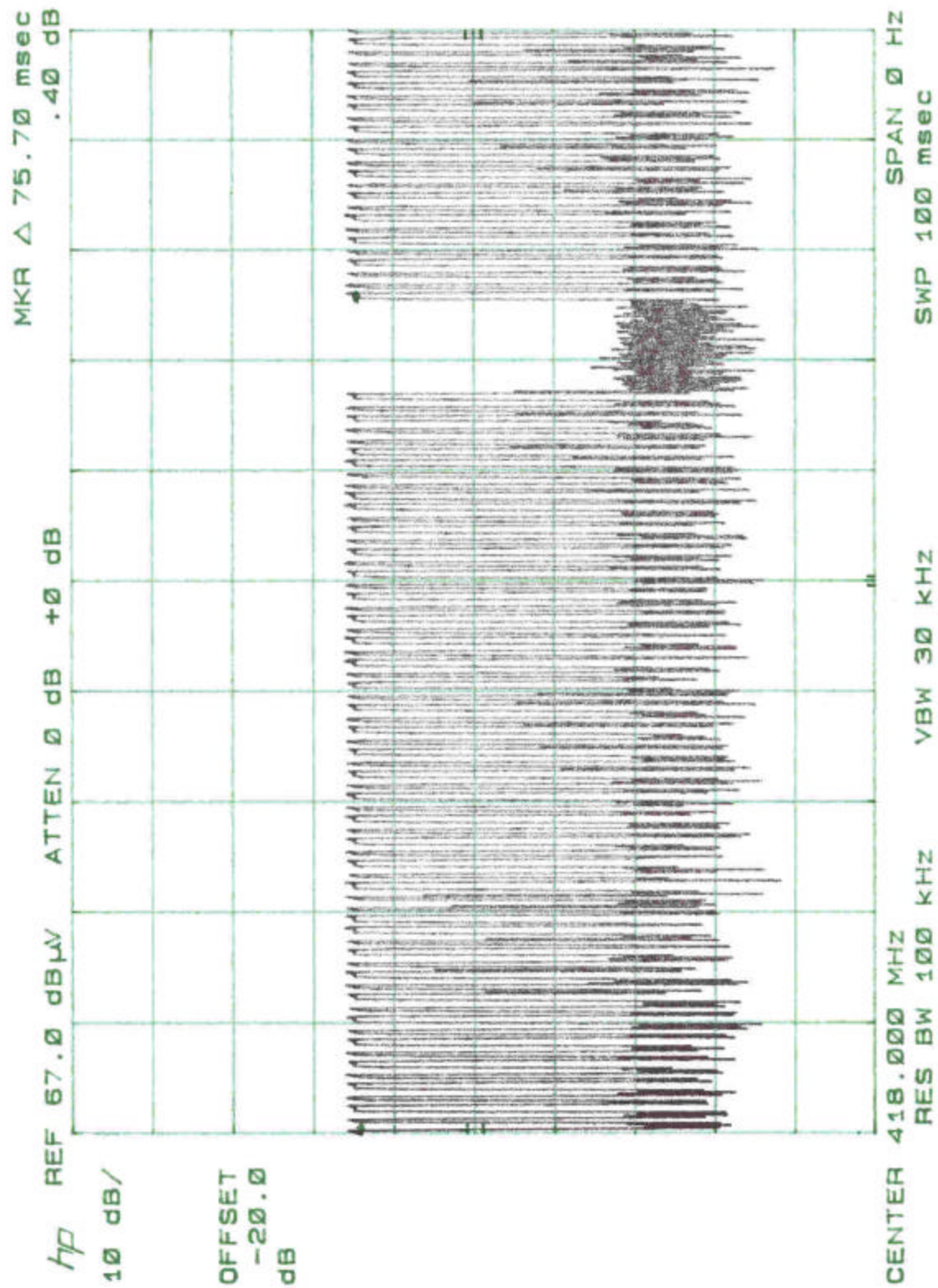
$$27.36\text{ms} / 75.7\text{ms} = 36.14\% \text{ or } -8.8\text{dB}$$

The Test Report used a -1.1dB correction.

In the E-Stop mode the Duty Cycle is much less. From the theory of operation the code and on time is shortened. Additionally there is a 20ms wait time between transmissions for the E-Stop mode.



Duty Cycle Plot, 200ms Pulse Train Repetition



Duty Cycle Plot, 100ms, 75.7ms Pulse Train

