July 31, 2002

To: Mr. Timothy R. Johnson, American TCB, Inc.

From: Greg Snyder, Washington Laboratories, Ltd.

RE: Transportation Safety Technologies, Inc.

FCC ID: NVX-TST-RFT200

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. 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 theory of operation, the EUT would have a worst case code of 1 double wide start bit and up to 16 other single bits in normal mode. With the start bit being 500us and the single bits being 280us the worst "ON" time is calculated at 4.98ms.

From the timing plot shown in the PDF file "Message Spacing – Normal" the length of a single pulse train is 27.4ms. There is a 20ms delay time between transmissions in normal operation as opposed to the ~5ms time depicted in the Test Report".

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

4.98ms/27.4ms = 18.2% or -14.8dB

The Test Report used a -14.3dB correction.

In the E-Stop mode the Duty Cycle is much less. From the PDF file "Message Spacing – E Stop", the code has an on time of 2.72ms. There is also a 20ms wait time between transmissions for the E-Stop mode. This makes the pulse train 24.2ms long. Based on this timing the following duty cycle is calculated for the E-Stop Mode.

2.72ms/24.2ms = 11.2% or -19dB