

To: FCC OET Laboratory, ATTN Steve Martin

From: CURRENT Technologies

Regarding: Correspondence regarding test signal duty cycle

In addition to the reply data previously submitted on 25 July 2006, we offer the following data on the specific test signals used and the impact on emissions measurements. As previously submitted, the 'mfgviperon' command used for testing is designed to create repeated system overhead messages that fully exercise the quasi-peak detector and can be duplicated in both the field and lab environment. The command creates a burst of 200 OFDM symbols that get repeated at least 40 times per second, easily exceeding the 20 pps requirement. To illustrate this point, the signal was generated in a laboratory and its time domain waveform captured. This data is shown below. Figure 1 shows a plot of the 200 symbol OFDM burst.

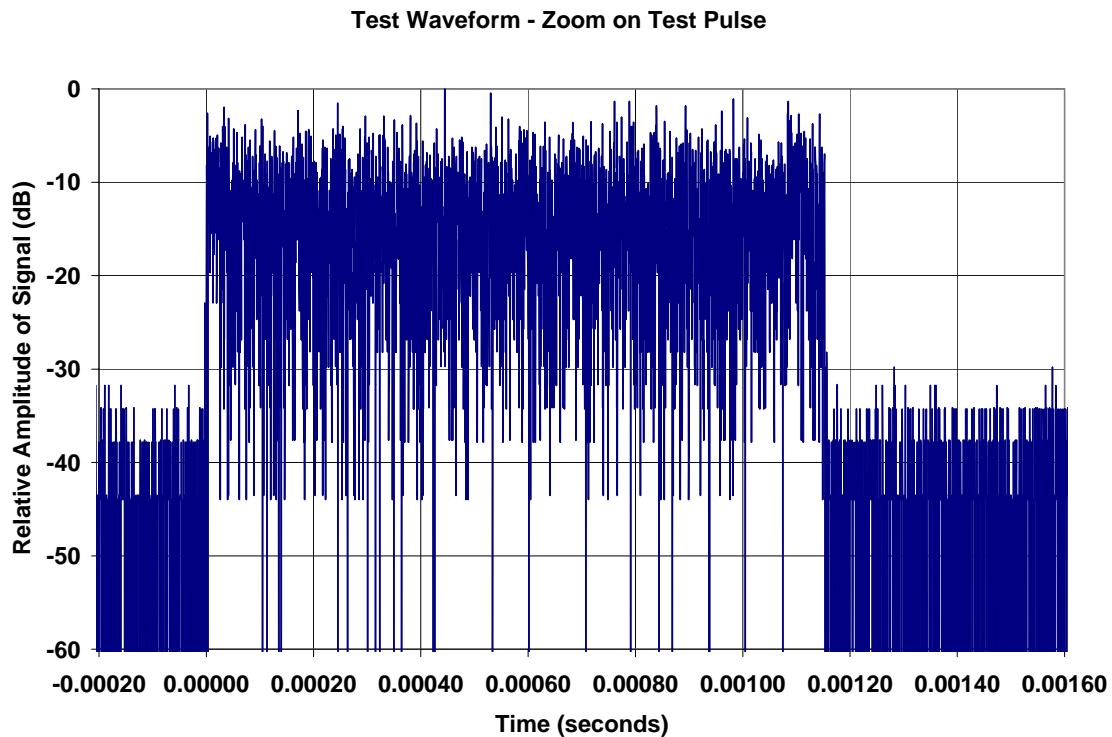


Figure 1: Test Waveform - Zoom on Test Pulse

Note that the burst is longer than 1 ms, ensuring that the signal remains continuously on during the rise time of quasi-peak detection filter.

A plot of the bursts over a full second is shown in Figure 2, in a plot of a full second of the waveform.

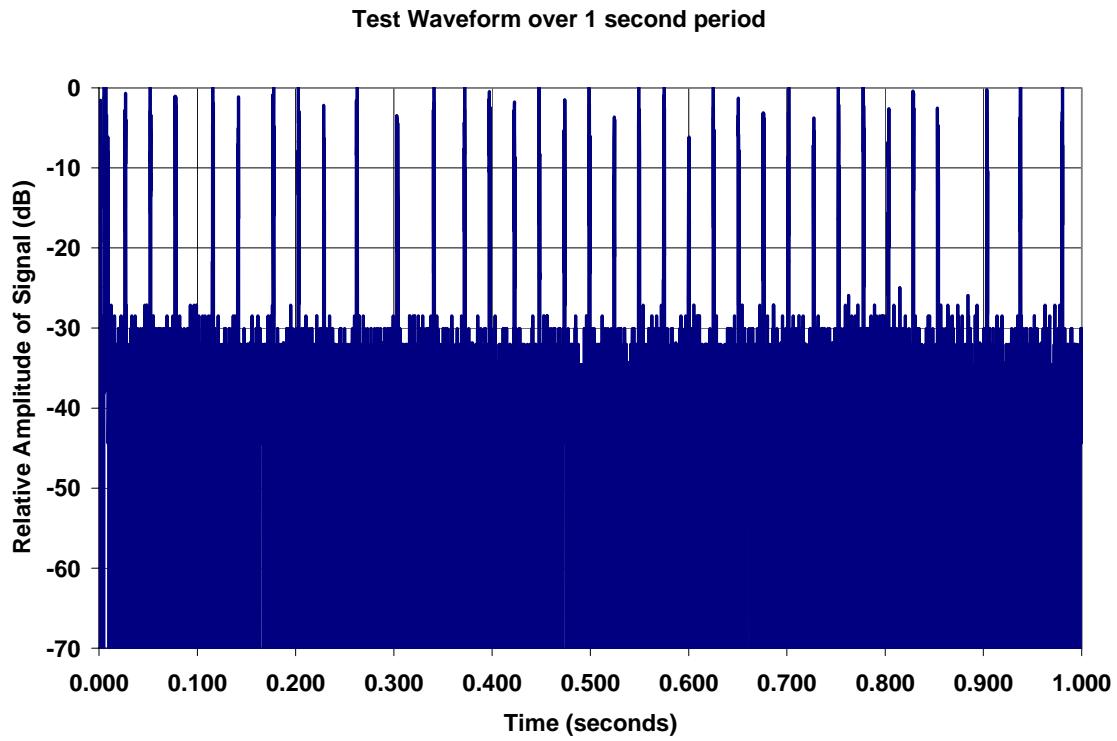


Figure 2: Test Waveform over 1 Second Period

The repeated bursts ensure that the quasi-peak filter decay constant is not allowed to fully discharge, thereby ensuring that the measurement will register the maximum possible emissions as called out in Appendix C.

It can be properly noted that the overall duty cycle of this transmission is relatively low, although the burst rate is fairly high. Laboratory testing of the signal shown in Figure 2 registered a quasi-peak level of 71.9 dB μ V. To compare this against a signal with a very high duty cycle, the same unit used for the tests in Figures 1 and 2 was used to generate a high rate of throughput so that the duty cycle approached 100%. The resulting waveform is shown in Figure 3.

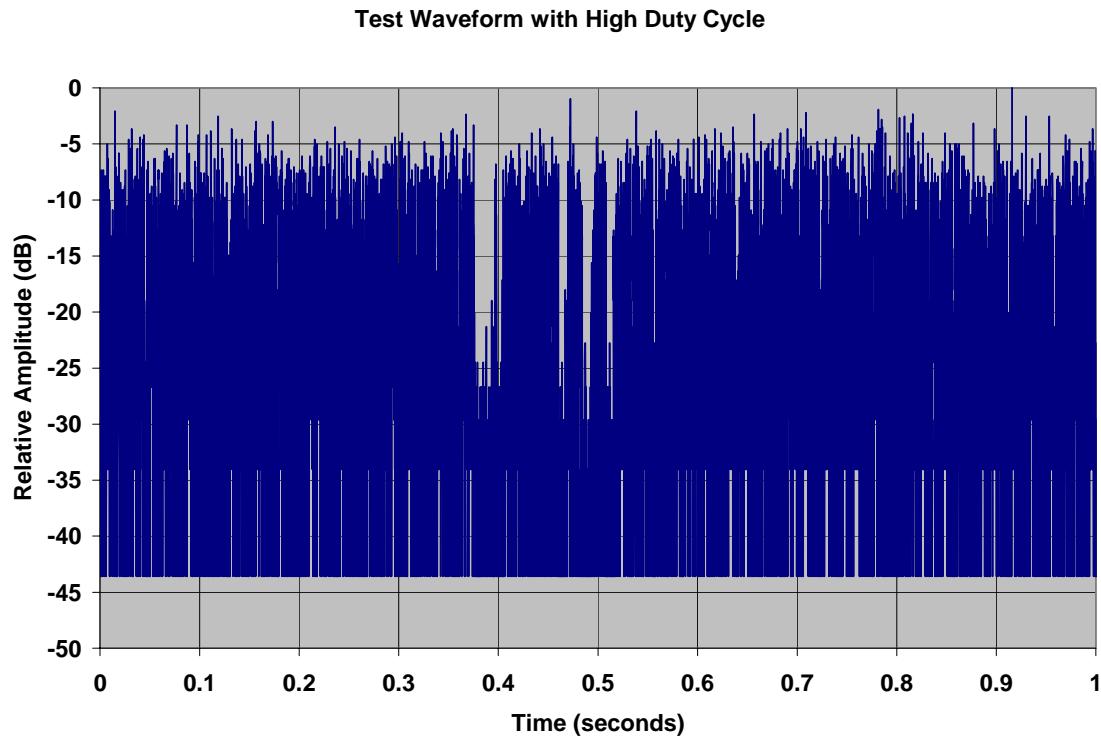


Figure 3: Test Waveform with High Duty Cycle

A quasi-peak level of this waveform provided a level of 71.3 dB, or 0.6 dB less than the test signal used in all field testing. The test signal provides a full exercise of the quasi-peak detector in a repeatable manner that can be readily achieved in the field. This ensures that field testing registers the maximum emissions and can be done in a repeatable manner.