To: FCC OET Laboratory, ATTN Steve Martin

From: CURRENT Technologies

Regarding: Correspondence 31235, FCC ID TY7210-0150, EA296140

NOTE: This reply to correspondence modifies the operational description and is included in the Request for Confidentiality filed with the original application.

The correspondence noted above raised a number of questions. These questions are listed in boldface below, with the answer directly below the questions.

Q: Application is for model URD 5000r, but tests below 30 MHz were performed on URD 5000mv1. What are the differences between these two models? Please clarify the differences with words, photos, block diagrams, etc. Explain the functions of components that differ between the units.

A: The question will be answered in a later submission.

Q: Installation manual mentions two couplers (URD 5000r and URD 5000rp). Are both coupler models intended for use with the CT Bridge URD 5000r? If so, please clarify any differences that might affect emissions.

A: Only the CT Coupler URD 5000r is used with the CT Bridge URD 5000r, and was used for all testing cited in the Report of Measurements. The CT Coupler URD 5000rp is used with different products in a different set of pole configurations.

Q: Installation manual mentions a URD 3:1 Coupler Splitter. Is this device intended for use with CT Bridge URD 5000r? If so, please clarify whether it was used during emissions testing and any expected impact on emissions for configurations in which it is used.

A: The splitter is only used for CT Bridge URD 500r installations at a sectionalizer. (A sectionalizer is a device that provides switching and branching functions for underground electricity distribution lines.) The splitter divides the signal for distribution to more than one coupler. As it simply divides the signal and does not provide gain, it does not have any meaningful impact on emissions. The splitter was not used during testing.

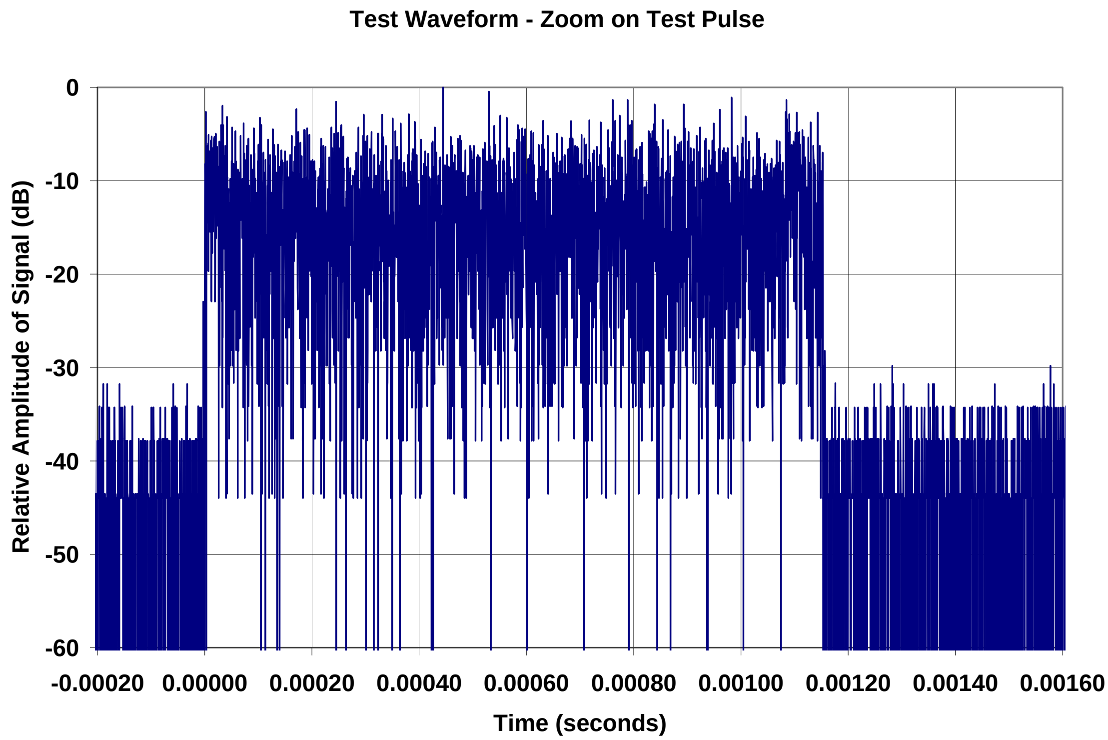
Q: Submitted installation manual does not include any operator instructions related to complying with FCC interference mitigation and avoidance requirements. Please provide sections of operator instruction manual for this EUT or for the system controller relevant to compliance with these requirements. (E.g., achieving the notch depth requirements in 15.611(c) may require masking out several carriers beyond the edge of the band to be protected. How is this information conveyed to the operator?)

A: An operator document describing the notch conditions is attached to this correspondence reply.

Q: What was the burst rate of BPL signal injection onto the power lines during testing for each band of operation?
Q: Please specify the maximum RF injection duty factor achievable by the device and identify the duty factor of signal injection during testing for both bands of operation.

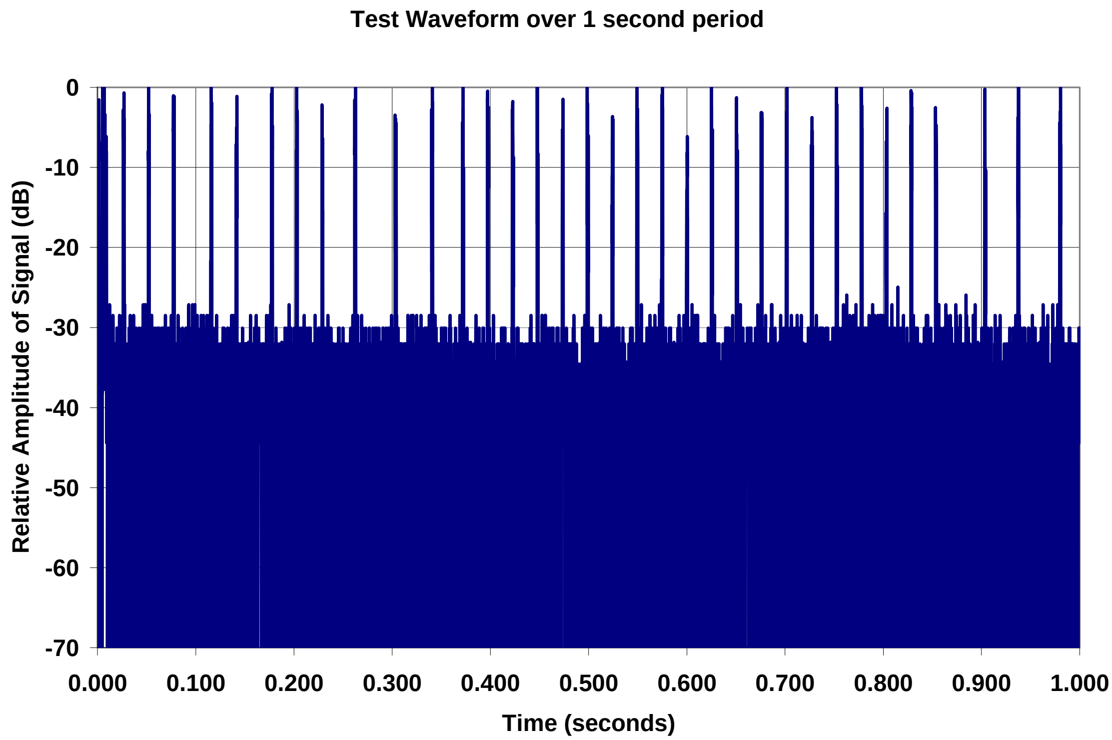
A (To both questions directly above): To generate test traffic on both medium voltage and low voltage, a special mode in the device was used that forces the BPL modem to continuously generate transmission on the line. This works by forcing the modem under test to repeatedly and continuously transmit system overhead messages. The '*mfgviperon*' command transmits these in a manner that exceeds the normal ability of the modem to generate traffic in actual use, by repeatedly sending these overhead messages to a remote station on the powerline. These messages generate 200 OFDM symbols over 40 times per second, ensuring that the 20 pulse per second minimum is exceeded, and that the transmit rate approaches the maximum achievable with these signals in actual operation. As the maximum duty cycle in a CSMA network such as this is indeterminate; this technique ensures that a repeatable measurement can be conducted while ensuring that the quasi-peak detection filter is not allowed to decay, and reduce the measured level in a manner not indicative of its maximum transmission.

To illustrate this point, the signal was generated in a laboratory and its time domain waveform captured. This data is shown below. The figure below shows a plot of the 200 OFDM symbol burst.



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 below, in a plot of a full second of the waveform.



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.