**[Programmable Communication Group](https://sites.google.com/a/temple.edu/programmable-communication-group/)**

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| Date | Friday, September 20, 2013 | | |
| Advisor | Dr. Silage | | |
| Members | Cedric Destin | Brandon Keith | Brian Thibodeau |

Headline: Cedric and Brandon attend SD1 meeting on 09/20/13. Brian and Brandon discuss sinusoid-to-square wave conversion in Simulink model of KD2BD modem on 09/21/13. Brandon thinks that it’s detrimental in non-deterministic scenarios (i.e. noisy signal). Perhaps post-PLL sinusoids can be converted to square waves, but no pre-PLL sinusoids should be converted to square waves. Enrolled as [Project category #2](https://sites.google.com/a/temple.edu/programmable-communication-group/home) .

Topics to discuss

* Initial transient response in the BPSK audio output of Cedric’s modulator.

Dr. Silage feedback

* The *Variable Transport Delay* block in Simulink is useful for controlling the periodic phase shift (hence, periodic frequency shift) for the modeling of Doppler shift.
* Initial transient response is to be expected in a communication system; leave it in.

Topics to discuss in next SD meeting

* Brandon to show progress of AFC in Simulink model of KD2BD demodulator.
* Brian to show implementation of Silage feedback on KD2BD demodulator demo from SD1 meeting 09/13/13.
* Cedric to show working Simulink model of KD2BD modem (w/o AGC or AFC) with all simulation times in agreement across the entire model and looking into adding a Bit Rate Error calculation
  + This is for future reference, we should have no error in our current design but I want to set up the block when noise is added onto the model

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| **Engineer** | **Status** |
| Brian Thibodeau | * Attempted to convert all sinusoids to square per Dr. Silage’s feedback. However, the PM modulator output is a bipolar pulse and when passed through the rectifier, the signal becomes a constant. This does not make sense and after talking to Brandon on Sat. 9/21, we agreed that pre-PLL signals should continue to be modeled using sinusoids. |
| Cedric Destin | * Fixed the BPSK Simulink modem   + The sampling rate Tsimwas chosen to be   + I had made a mistake with the encoder (not modulator) I had it running too fast   + All the sample rates are matched together |
| Brandon Keith | * Made an effort to fix the simulation timing between the Simulink models of the KD2BD modulator (Cedric) and demodulator. The system-level model simulates but the BPSK audio output from the modulator is inaccurate. I forced a data conversion (Boolean to double) for the input of the 1200 Hz bandpass filter in the modulator. This might be where the issue starts. If you need it Cedric, model is available in link below.   + [Github Link](https://github.com/RadioInnovators/SD/blob/master/user_sandbox/bkeith/PCGModem_Simulink/KD2BD_Pacsat_Modem_integrate.slx) * We need to meet on Monday 09/23/13 to formulate a realistic standard of simulation timing in our models. * Working on AFC for Simulink model of KD2BD demodulator.   + ETC: 09/26/13 * Watched WebEx training videos (see Silage email 09/12/13) |
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