Where To Find This Example

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Or in Version 13 or higher you can open the project directly from this page using this button. Make sure to select the **Enable Guided Help** before clicking this button.

Open Install Example

Design Notes

**Standard Turbo Encoder and Decoder**

This example shows how to use of the VSS standard turbo encoder and decoder. TURBO_ENC_STD is a turbo encoder that supports various standard turbo codes. The user can select the appropriate standard, code rate and block length. TURBO_DEC_STD is a typical iterative turbo decoder, which can be configured automatically using code parameters propagated by the turbo encoder. A BER meter may be used to measure BER and sweep Eb/N0. An AWGN model is used to simulate the propagation channel based on the Eb/N0 setting. Please note that the noise level is set according to Es/N0, which is calculated based on Eb/N0 by using appropriate scaling to account for the coding gain and modulation type.

The turbo decoder can be configured to use various windowing implementations and various Add-Compare-Select (ACS) algorithms. In this example, a standard cdma2000 turbo code with rate 1/2 and block length of 2298 is used. The decoder is implementing a full-window recursion using a Log-MAP ACS algorithm and is running 5 iterations. The results of a simplified ACS algorithm, Max Log-MAP, are shown for reference in the BER N2 2298 MaxLogMAP graph. From these results, it may be seen that the Log-MAP ACS algorithm provides a gain of 0.25 dB compared to the simplified Max Log-MAP. Details for the supported ACS algorithms are provided in the TURBO_DEC_STD element help.

System Diagram - System Diagram 1

Graph - BER
Graph - BER N2 2298 MaxLogMAP