QPSK_Multirate

Where To Find This Example

Select **Help > Open Examples...** from the menus and type either the example name listed above or one of the keywords below.

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

QPSK_Multirate

This example demonstrates a multirate QPSK system in VSS. The term multirate is used to distinguish the fact that the data rate of the inphase (I) channel differs from that of the quadrature (Q) channel.

The DAC blocks after the random digital sources convert the different data rates to the same sampling frequency at the input to the two mixers.

The I-channel has a bit rate of 1024Kbps and its DAC has the sample per symbol parameter (SMPSYM) set to 20.

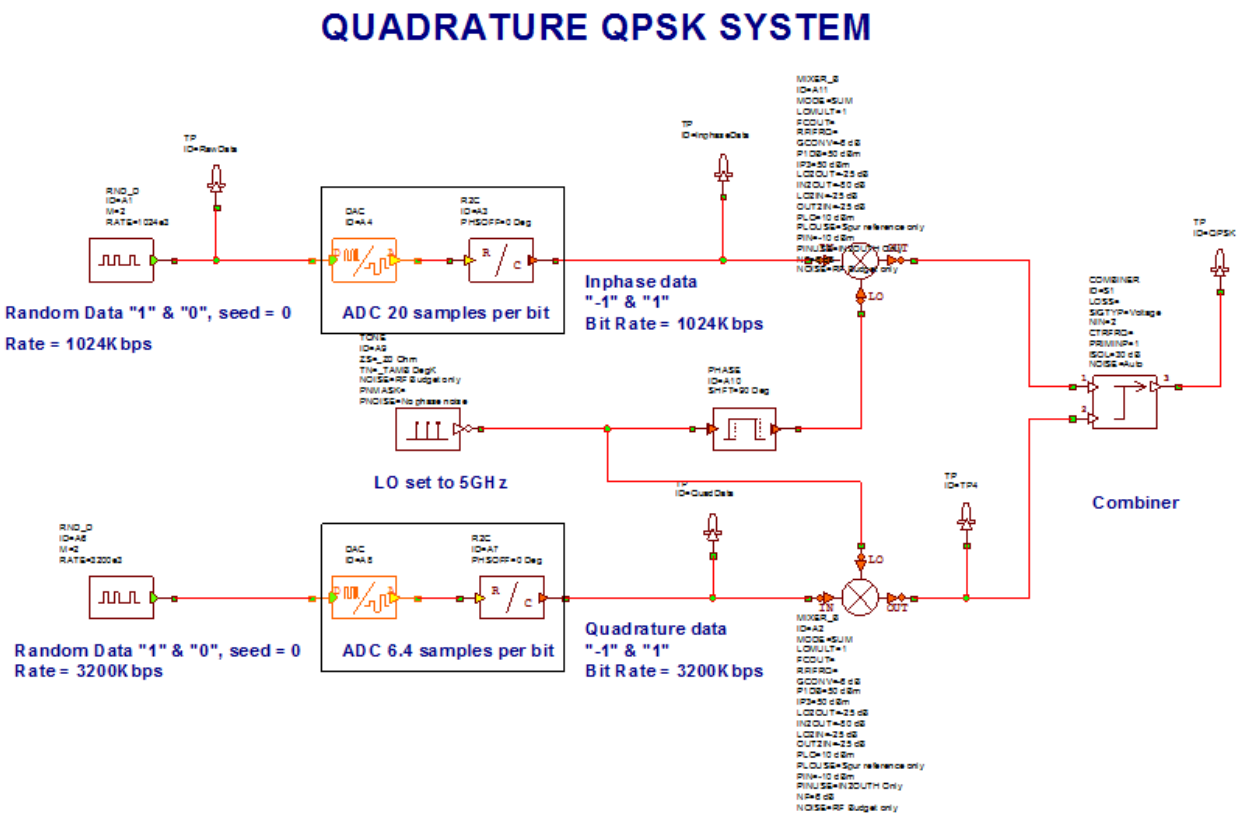
The Q-channel has a bit rate of 3200Kbps and its DAC has the sample per symbol parameter (SMPSYM) set to 6.4.

Therefore, 1/(1024e3*20) = 1/(3200e3*6.4) = 48.828125ns.

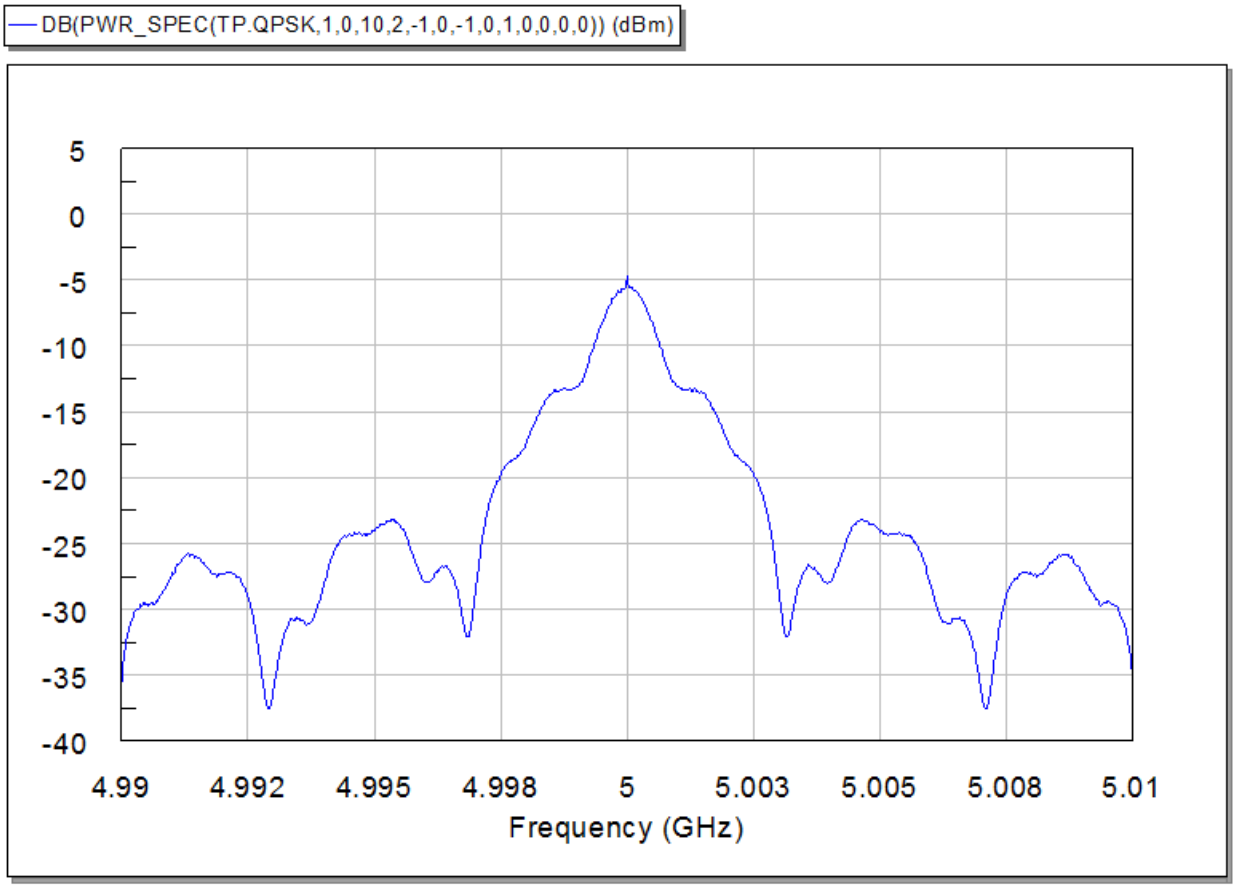
The resulting power spectrum can be seen in the “Power Spectrum” graph.

The raw Q and I data can be seen in its corresponding graph.

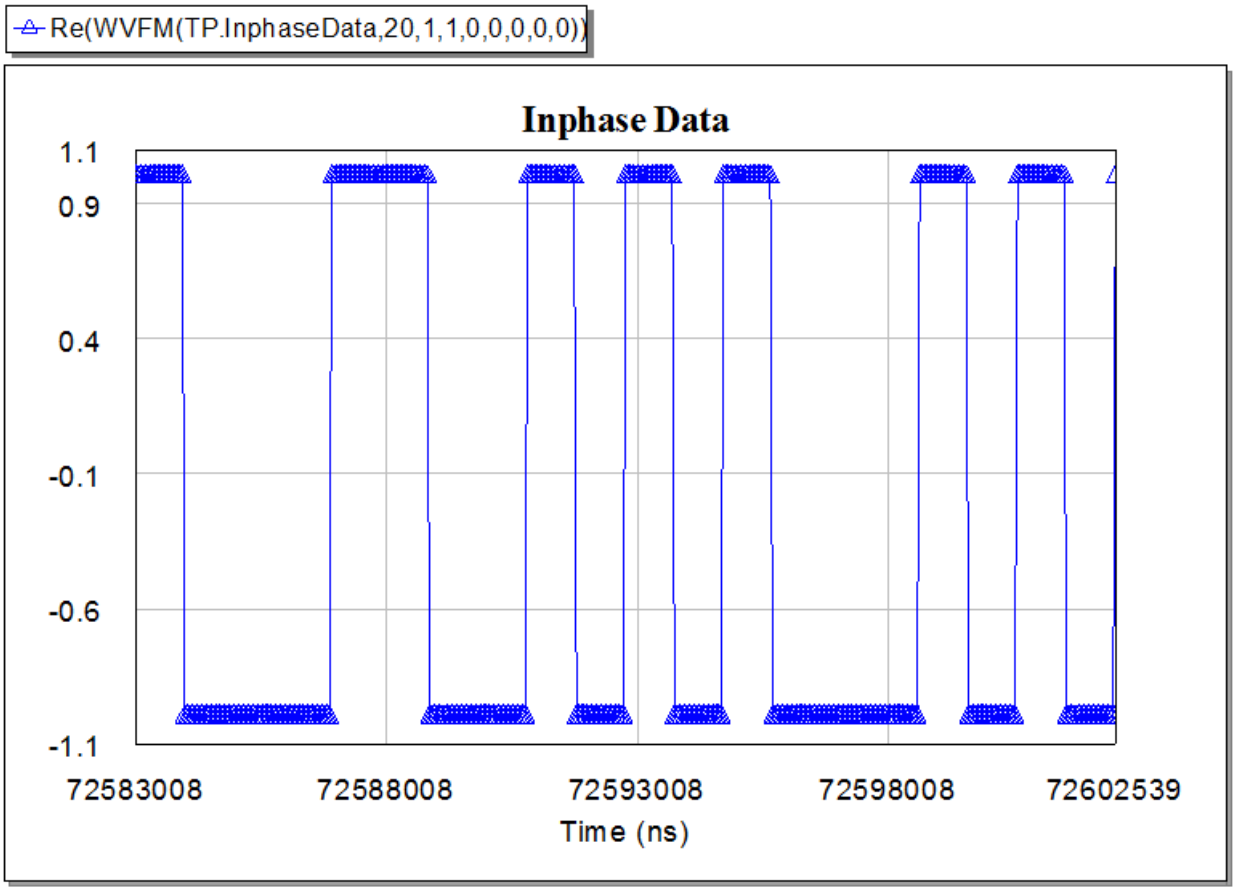
System Diagram - Quadrature QPSK System



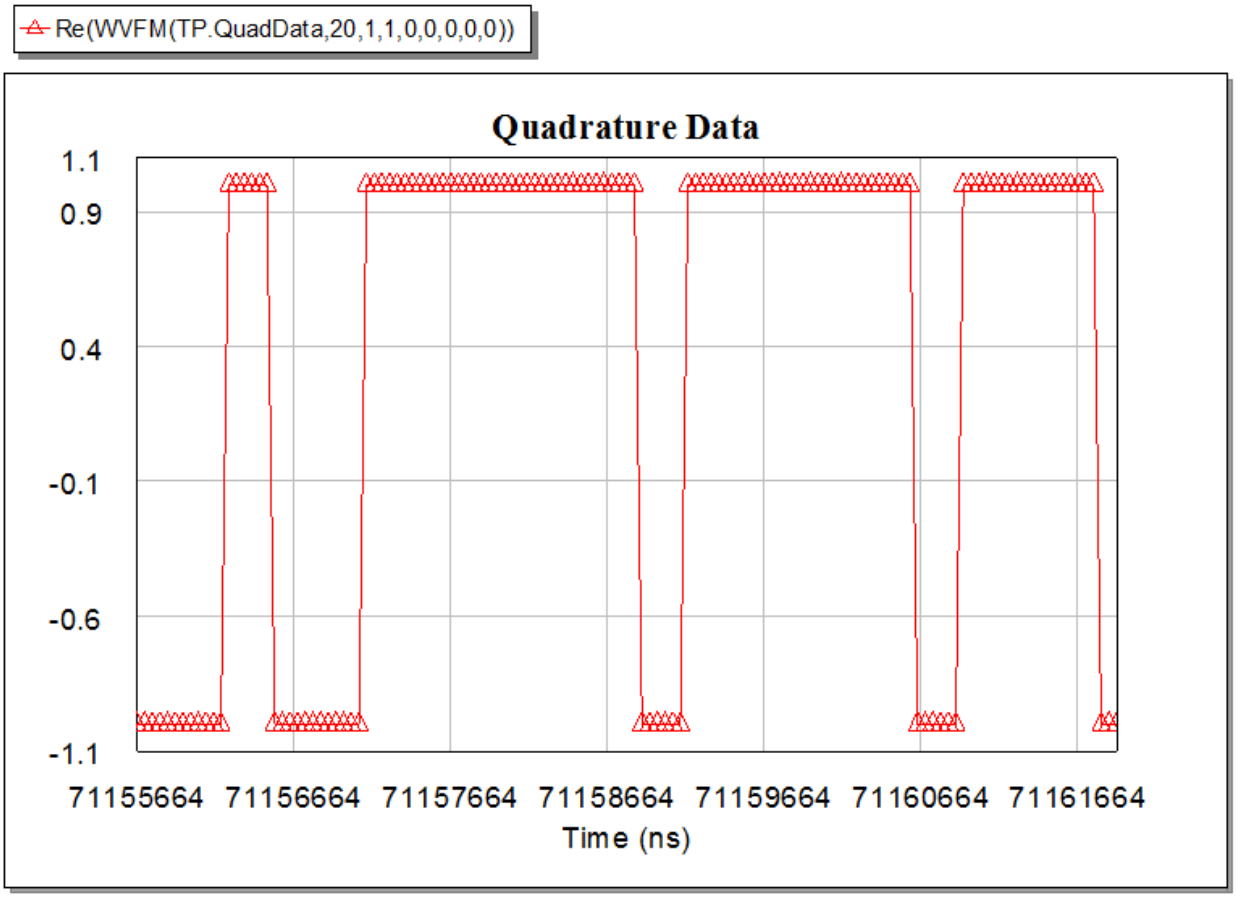
Graph - Power Spectrum



Graph - Inphase Data



Graph - Quadrature Data


Re(WVFM(TP.QuadData,20,1,1,0,0,0,0,0))
Quadrature Data
1.1
0.9
0.4
-0.1
-0.6
-1.1
71155664
71156664
71157664
71158664
71159664
71160664
71161664
Time (ns)