Pulse Shaper

December 28, 2016

This block applies a raised-cosine filter to the signal. It accepts one input signal that is a sequence of Dirac delta functions and it produces one output signal continuous in time and in amplitude.

Input Parameters

- filterType{RaisedCosine}

- impulseResponseTimeLength{16}
  (int)
  (This parameter is given in units of symbol period)

- rollOfFactor{0.9}
  (real $\in$ [0,1])

Methods

PulseShaper(vector<Signal *> &InputSig, vector<Signal *> OutputSig) :FIR_Filter(InputSig, OutputSig){};

void initialize(void);

void setImpulseResponseTimeLength(int impResponseTimeLength)

int const getImpulseResponseTimeLength(void)

void setFilterType(PulseShaperFilter fType)

PulseShaperFilter const getFilterType(void)

void setRollOffFactor(double rOffFactor)

double const getRollOffFactor()

Functional Description

The filter's transfer function is defined by the vector *impulseResponse*. The parameter *rollOfFactor* is a characterisitic of the filter and is used to define its transfer function.

Input Signals

Number : 1

Type : Sequence of Dirac Delta functions (ContinuousTimeDiscreteAmplitude)

Output Signals

Number : 1

Type : Sequence of impulses modulated by the filter (ContinuousTimeContinuousAmplitude)

Example

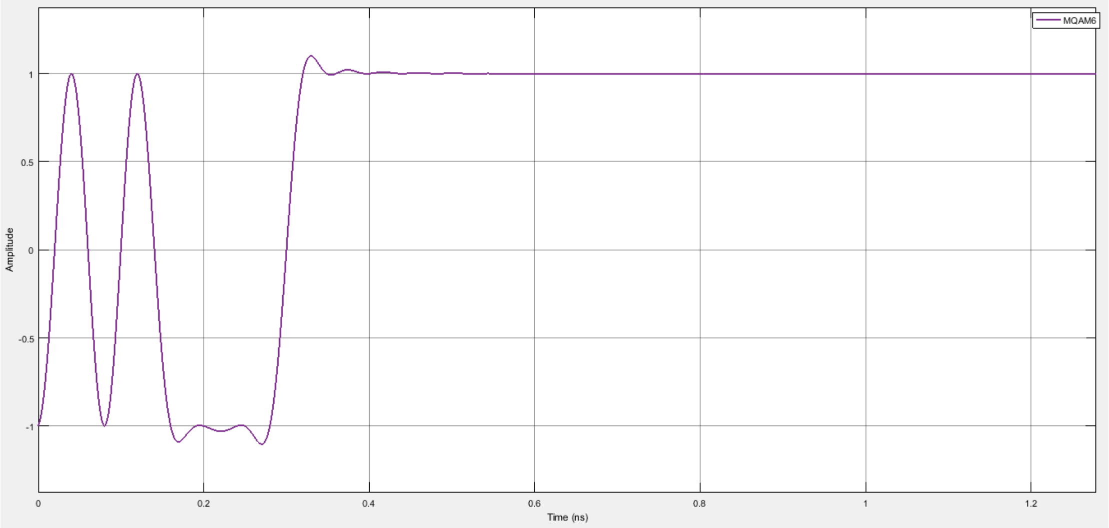

Figure 1: Example of a signal generated by this block for the initial binary signal ”0100011101010101”

Sugestions for future improvement

Include other types of filters.