

Pulse Shaper

April 8, 2017

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)
- `rollOffFactor{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 *rollOffFactor* is a characteristic 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

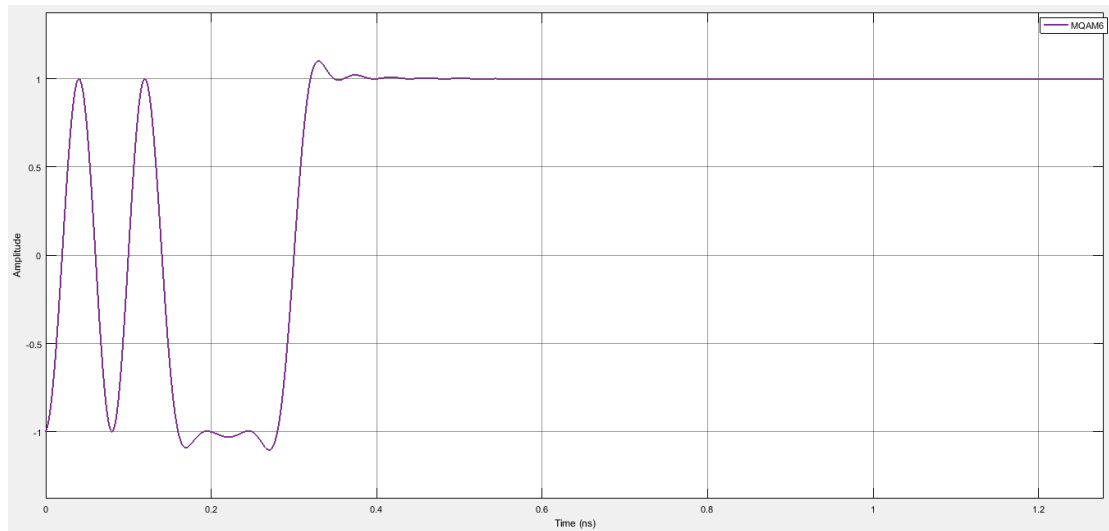


Figure 1: Example of a signal generated by this block for the initial binary signal "0100011101010101"

Suggestions for future improvement

Include other types of filters.