Local Oscillator

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This block simulates a local oscillator which can have shot noise or not. It produces one output complex signal and it doesn't accept input signals.

Input Parameters

- opticalPower{ 1e-3 }
- wavelength{ 1550e-9 }
- frequency{ SPEED_OF_LIGHT / wavelength }
- phase{ 0 }
- samplingPeriod{ 0.0 }
- shotNoise{ false }

Methods

LocalOscillator()

LocalOscillator(vector<Signal *> &InputSig, vector<Signal *> &OutputSig) :Block(InputSig, OutputSig){};

void initialize(void);

bool runBlock(void);

void setSamplingPeriod(double sPeriod);

void setOpticalPower(double oPower);

void setOpticalPower_dBm(double oPower_dBm);

void setWavelength(double wlength);

void setPhase(double lOscillatorPhase);

void setShotNoise(bool sNoise);

Functional description

This block generates a complex signal with a specified phase given by the input parameter *phase*.

It can have shot noise or not which corresponds to setting the *shotNoise* parameter to True or False, respectively. If there isn't shot noise the the output of this block is given by $0.5 * \sqrt{OpticalPower} * ComplexSignal$. If there's shot noise then a random gaussian distributed noise component is added to the *OpticalPower*.

Input Signals

Number: 0

Output Signals

Number: 1

Type: Optical signal

Examples

Sugestions for future improvement