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Implementation of Transceiver in Simulink

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Abstract: **In this research paper we are representing implementation of transceiver in simulink. Transceiver is divided basically in two parts that is egress and ingress these two parts contains different blocks in it. We can do many more things with transceiver in future. It is one of the most important things in the communication. All the digital techniques work on this concept. In this research paper we implemented the result of transceiver in simulink.**

Keywords: **Transceiver, egress and ingress, digital techniques.**

1. TRANSCEIVER

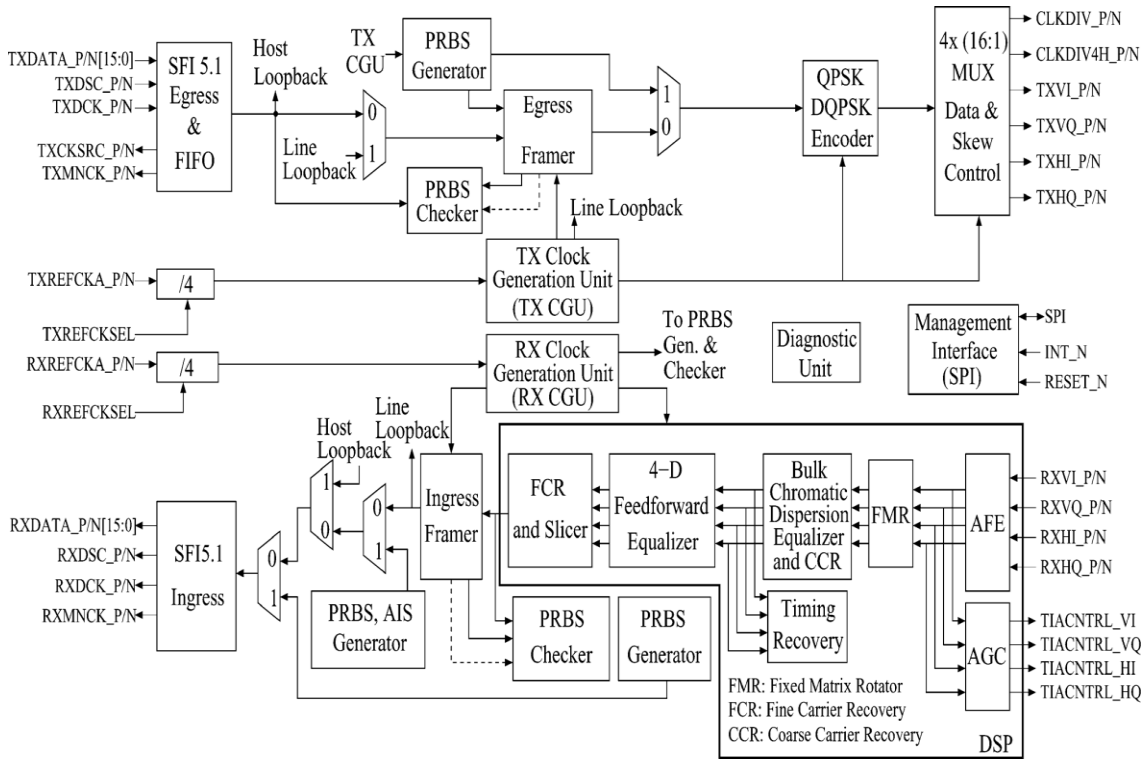

Figure 1:- Transceiver block diagram [1].

It is basically used for transmit the signal and to receive the signal (trans- to transmit the given signal and receive- to received the transmitted signal) .In combination we call it transceiver. In the above figure transceiver block diagram is separated in two parts that is egress path and ingress path. Both have their own clock generation unit. Egress path get the data from the host and its goes to the framer and the multiplexer after that it will go as a input in QPSK DP-QPSK encoder the output then goes to the line transmitter. Data on transmitter line consist of four dissimilar channels which is force by optical modulator and two pins contains clock. In the case of ingress path have data on received line which is

consist of four different received channel which is drive by optical demodulator[1] and four different external trans-impedance amplifiers (TIAs)[1].In that one most important unit is DSP . In DSP all receiver signal processing take place [1].Ingress path is also consist of AFE unit, timing recovery, FMR, bulk chromatic dispersion equalizer and CCR unit. Then the input of all these units goes to 4D feed forward equalizer the output of this then goes to FCR and slicer .then signal goes to ingress framer and then to multiplexer then it goes to ingress SF15.1 here we get four output. They use pipelined architectures with extremely short critical paths instead of parallel processing [1]. . The transceiver consist of a serial peripheral interface (SPI) which provides access to registers used to control the device operation, read or write parameters and coefficients, and read status signals, and a diagnostic unit, which provides a host of observe ability and controllability features used for testing, characterization, and channel diagnostics[1]

1.1 Transmitter:

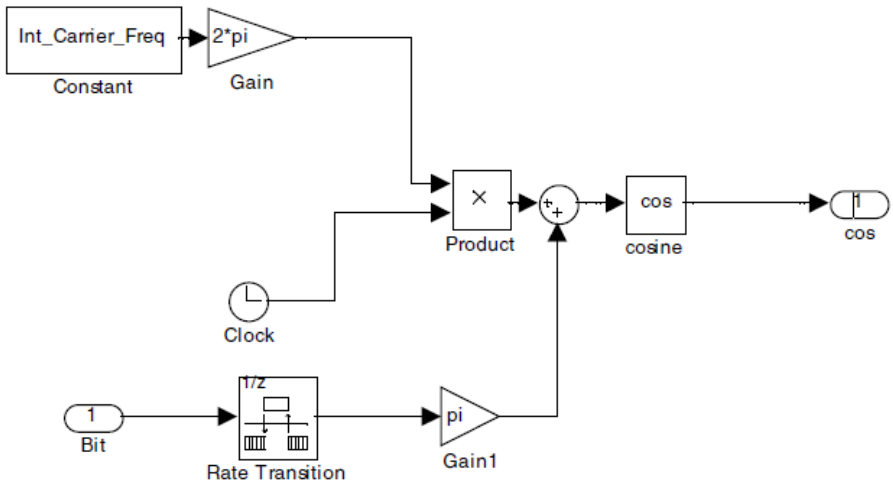

Figure 2:- Simulink model of Transmitter

It consists of a constant (which include int_carrier_freq) then its output goes to gain for gain it will be it input. Then its goes in the product it will be one of the input the second input of product come from the clock. One input of sum is come from the product and another input come from gain the output of sum goes as a input in cosine then we get the output is cos.

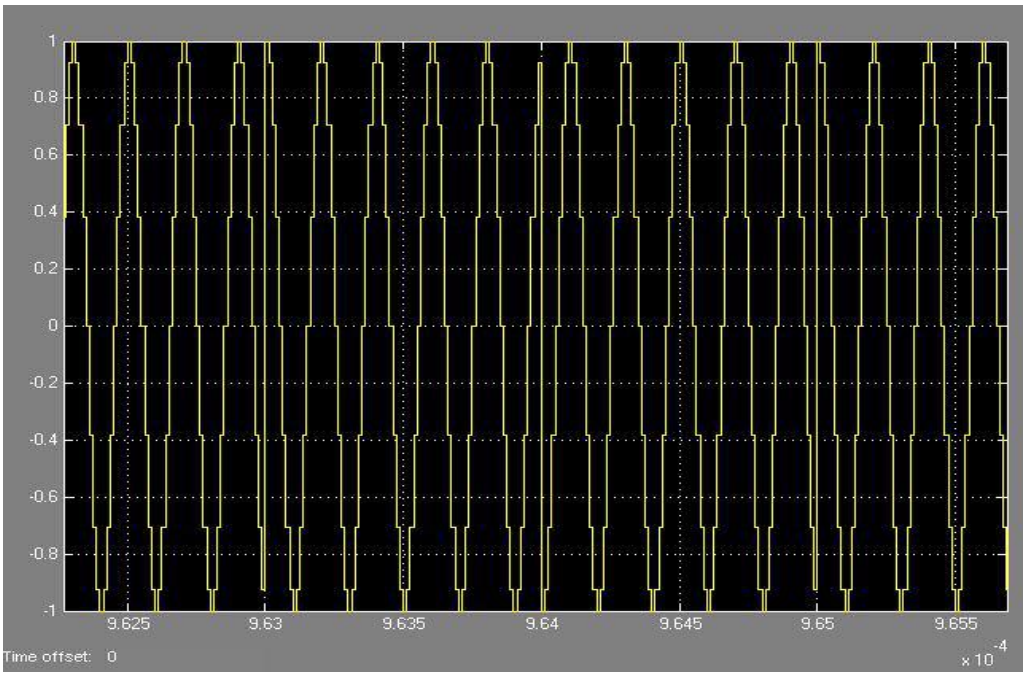

Figure 3:- waveform of transmitter

1.2 Receiver:

The work of receiver is to receive the data from the system. Its main principle is to receive audio and video signals from a number of sources, processing them to drive loudspeakers and a display [2].

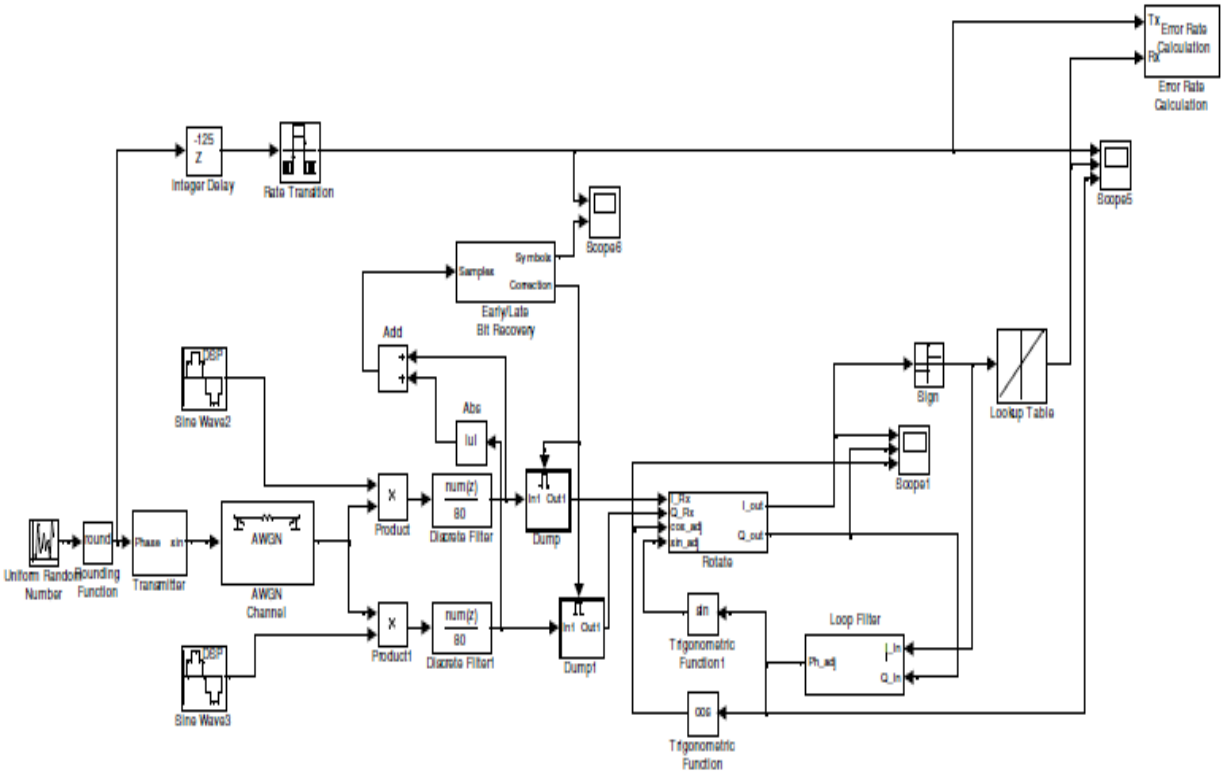

Figure 4:- Simulink model of the receiver

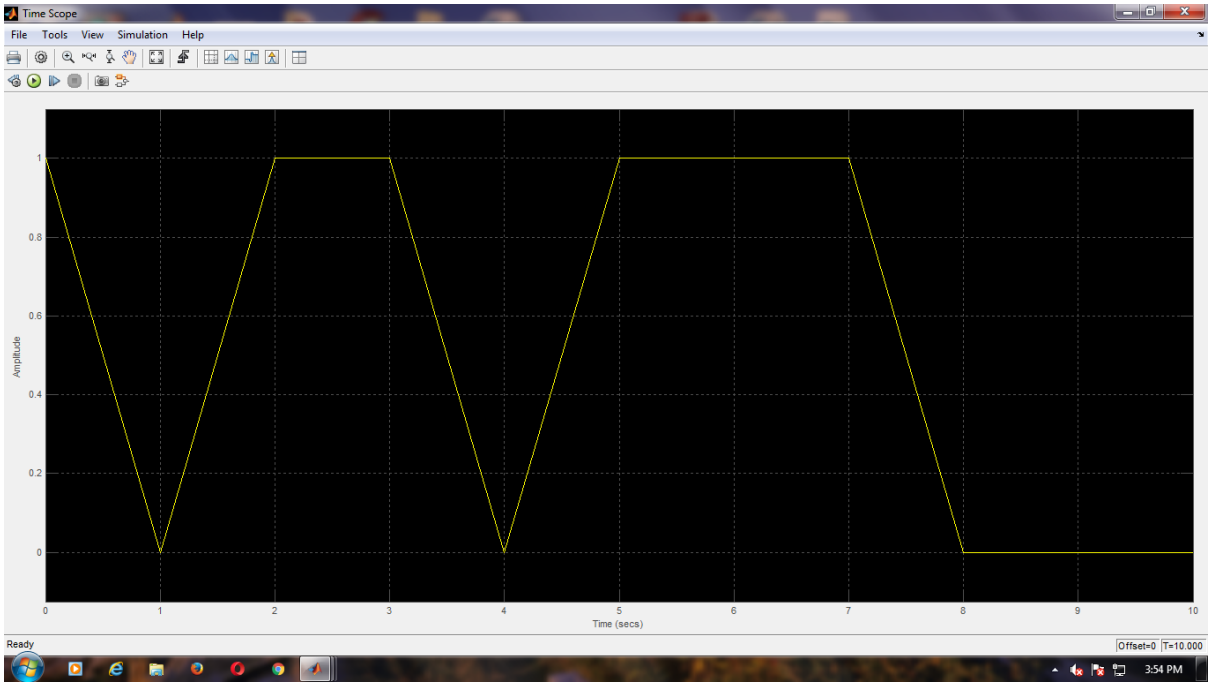

Figure 5:- Receiver output wave form

2. RESULT AND DISCUSSION

We have implemented the figures of transmitter, receiver and transceiver in simulink.

3. CONCLUSION

We have studied the output waveform of transmitter and receiver.

REFERENCES

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