# RSL\_DSP2018\_50GS\_Code

## Transmitter

Function: generate transmitted signal with/without pre-emphasis, dual-band signal with same data

Parameters:

Format: 4-QAM/QPSK

SymbolRate: 2.5GHz

NumSymbol: 2\*(2^15-1)

PulseShaping RC filter

Alpha 0.1

SubCarrierSpacing 12.5GHz

NumSubCarrier 2

SampleRate 50GHz

RF carrier +/-6.25GHz

Transmitter block, DSP part:

output signal: baseband and two RF signal without pre-emphasis,



Output signal with pre-emphasis (red line), loading into AWG:



The red signal is the transmitted signal. The dual-band signal with the same data modulated on different RF carrier of +/-6.25GHz.

***Q1: What’s the gain of the pre-emphasis in such a low amplitude compensation at the high frequency in the relative narrow band signals?***

***Q2: The two band signals have the same data, is the principle of K-K receiver?***

## Receiver

Receiver block, DSP part:

***问题：***

1. ***该方案应用的具体场景？***
2. ***光路上，发端是采用的直接调制？***
3. ***光路上，接收端是如何接收的？首先滤出一个边带，然后直接检测？***
4. ***发端信号为什么需要构建两个不同RF频率处具有相同数据的信号？有何意义？为了试验简单？***