

CHANNEL TOOL

MITRE-WPI
Kyle McClintick
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WHO IS THIS GUY?

Kyle McClintick, EE MS Thesis student

Advisor: Dr. Alexander Wyglinski

Research Interests: Antenna design, metamaterials, MEMS, beam forming, wireless networks, electronic warfare

Hobbies: Trumpet and bass guitar, reviewing modern rock albums, long distance running, computer games, cooking



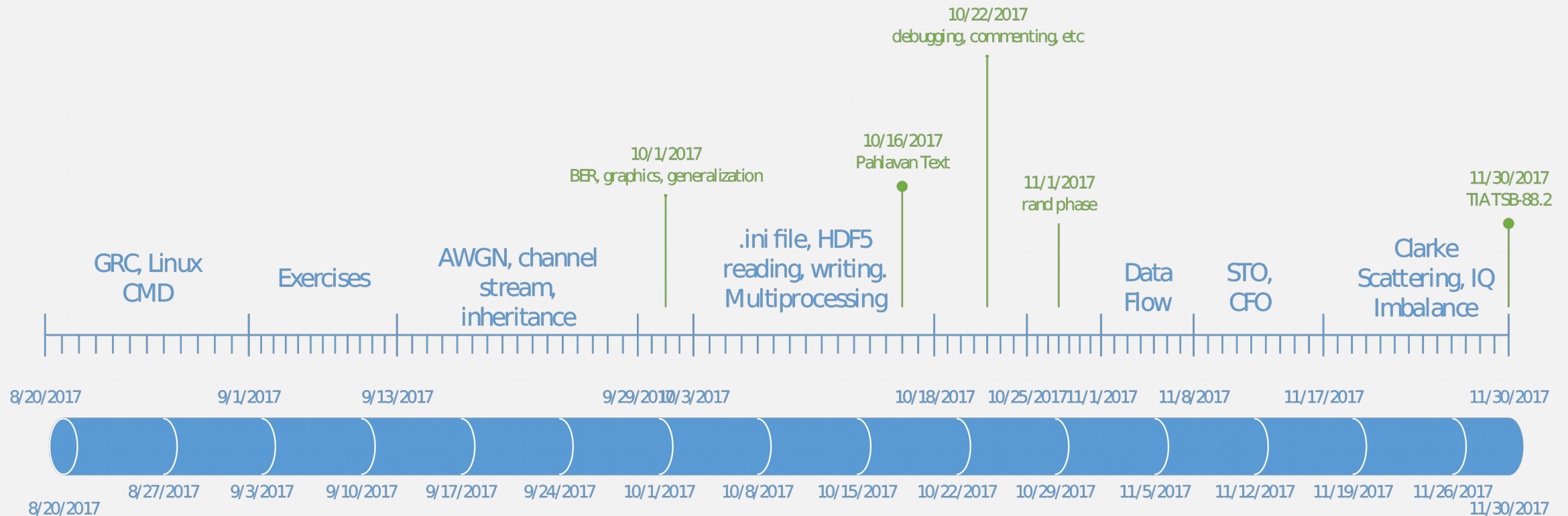
MOTIVATION

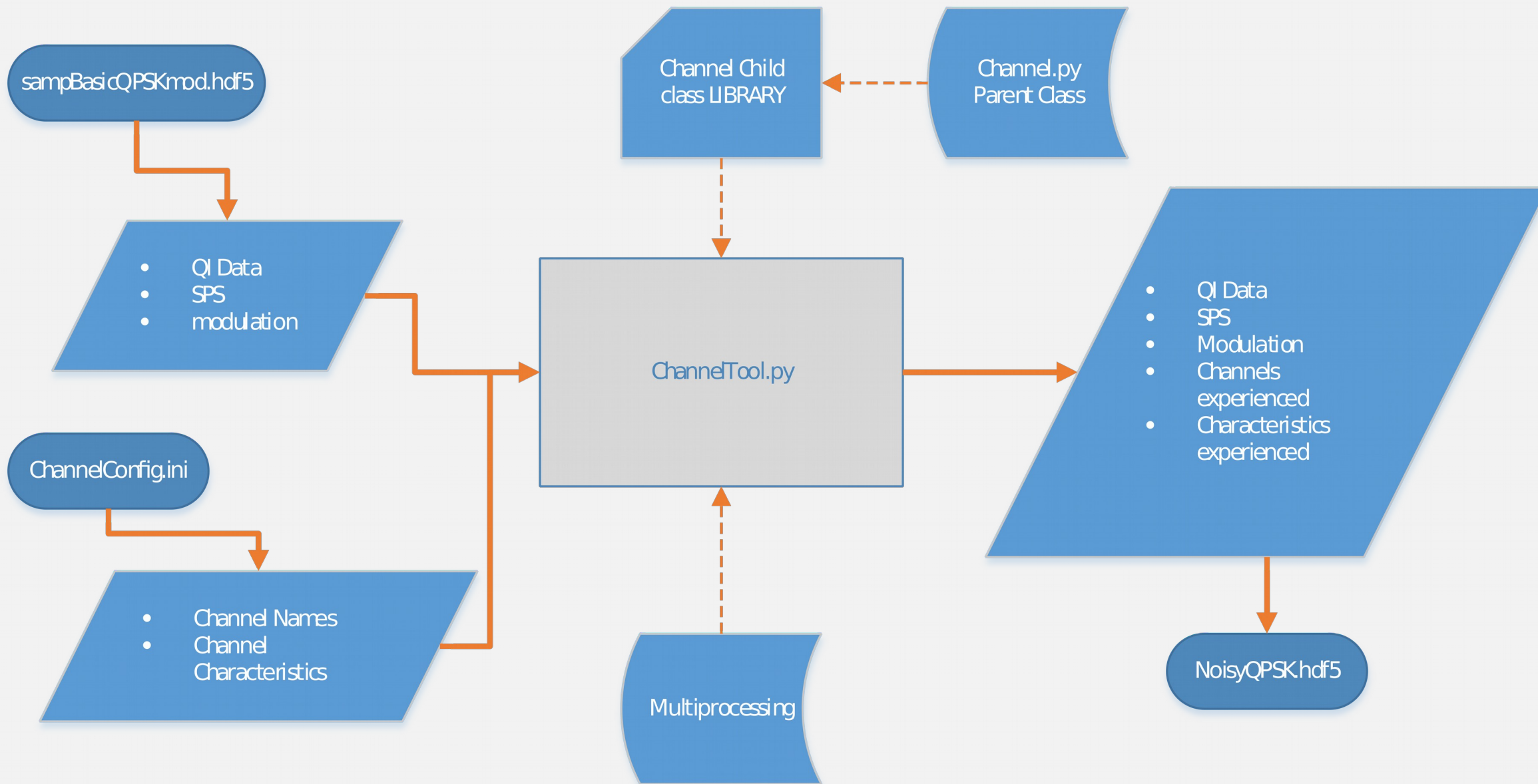
- Current machine learning training might not prepare algorithms for realistic channels
- Community may be overtraining certain channel features of a specific dataset
- Need a standardized evaluation of algorithm's performance
- Training in a variety of typical channels could yield data that could be exploited to better classify or better detect poisoning

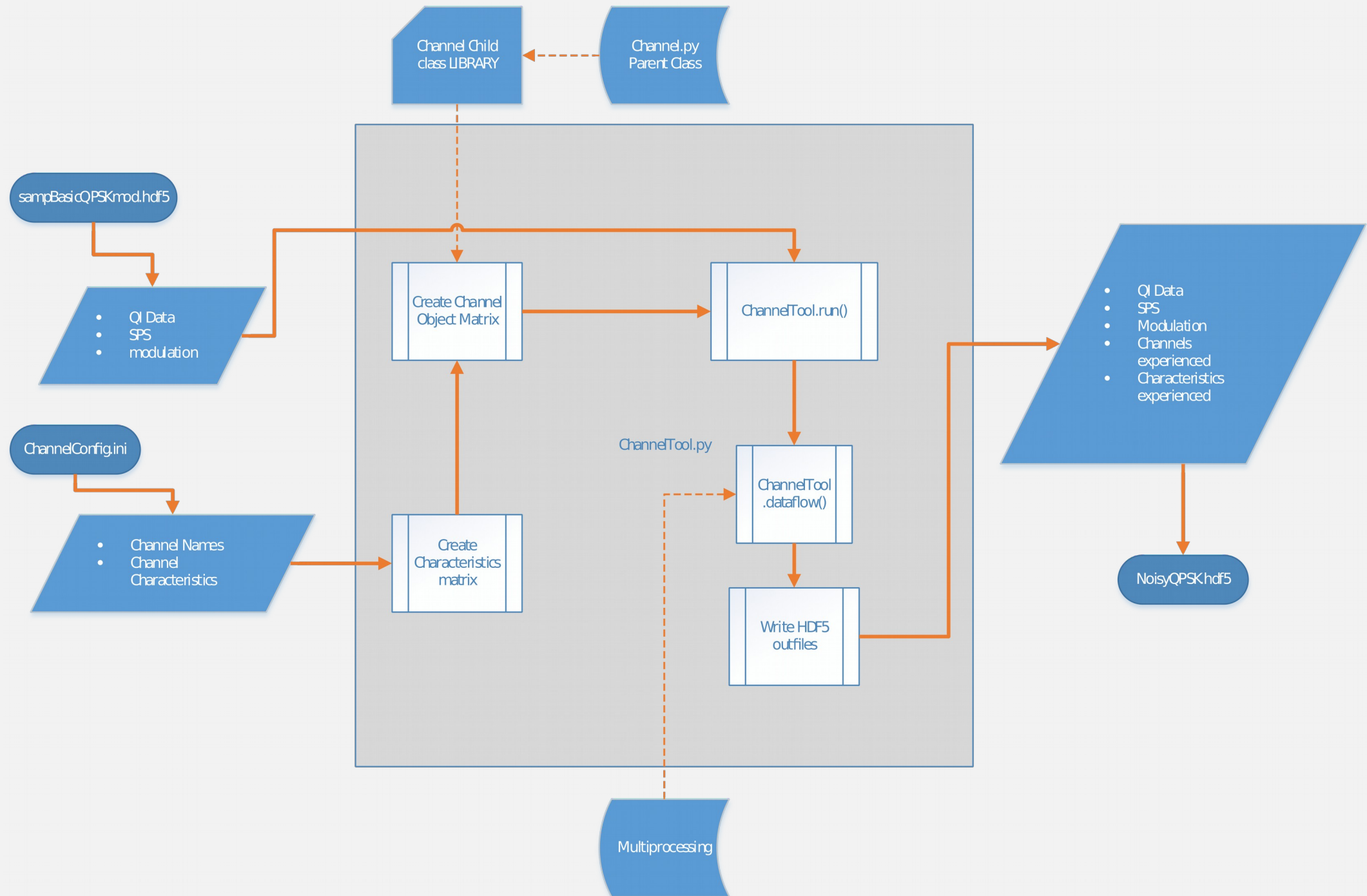
OBJECTIVES

- Assure ourselves that ChannelTool has a realistic and typical diversity of channels
 - Review classic literature to start
 - Field test algorithms post-training
- Determine and exploit effects of channel diversity to combat data poisoning using an algorithm from MITRE
- Continue to build library of child classes (RF frontend effects, multipath, etc)

SUMMARY OF EVENTS SINCE SEPT.







USING CHANNELCONFIG.INI

[CHANNELS]

Channel1 = RandomInitialPhase

Channel2 = AWGN

Channel3 = CFO

Channel4 = STO

[CHARACTERISTICS]

Characteristics1 = no settings available

Characteristics2 = variance1,variance2...variancen|SNR1,SNR2...SNRn

Characteristics3 = offset_per_symbol1, offset_per_symbol2,... offset_per_symboln

Characteristics4 = offset1...offsetn|rc_rolloff1...rc_rolloffn|rc_Ts1,...rc_Tsn| etc.

“BASIC” TX/RX IQ PLOTS

