NRC · CNRC

Expanded
Very Large Array

WIDAR Real-Time Data Display

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Overview

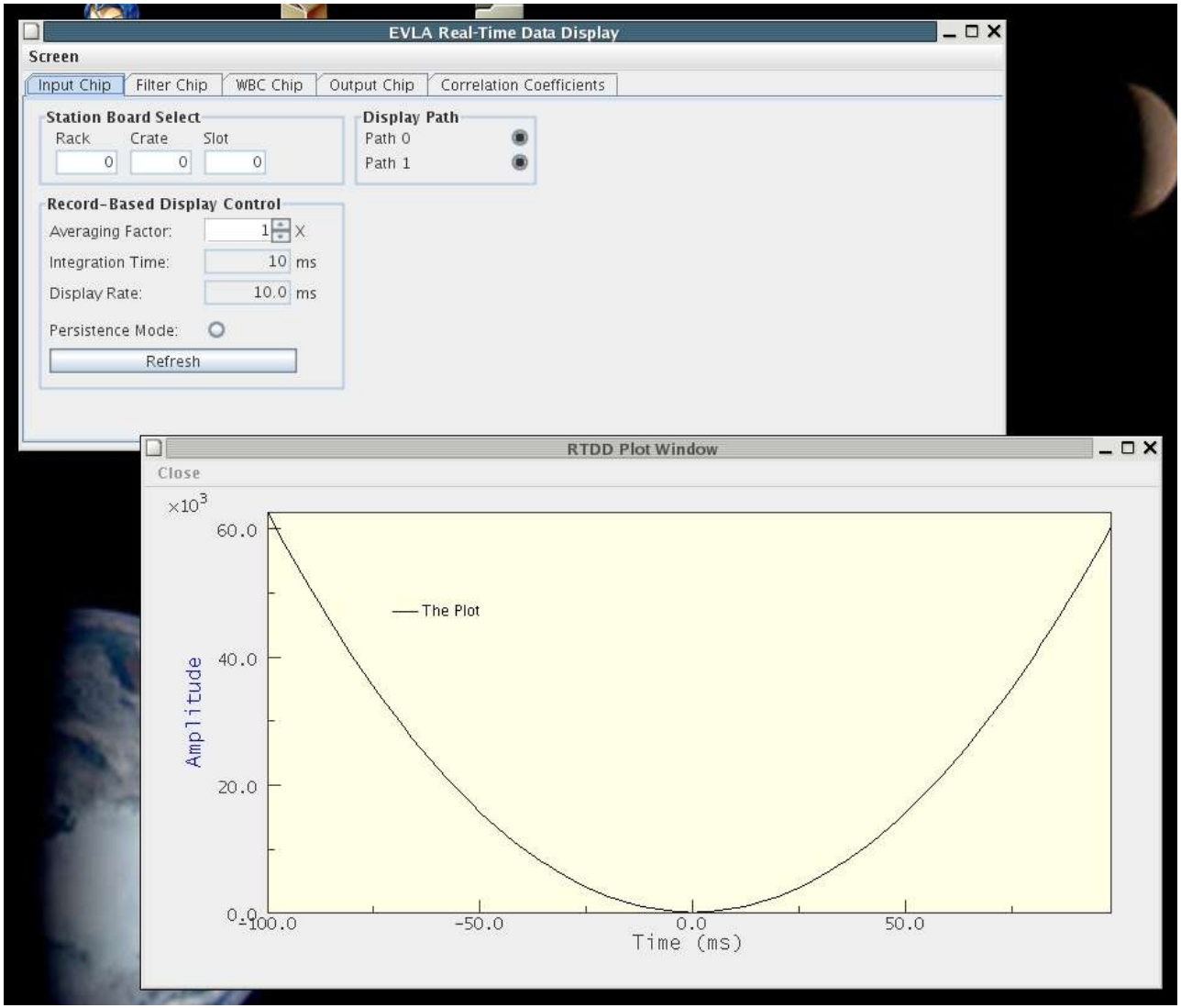
- What is the Real-Time Data Display (RTDD)?

  A diagnostic tool, used primarily in prototype testing, to allow correlator developers the ability to efficiently probe various parts of the system and visualize output correlator data.

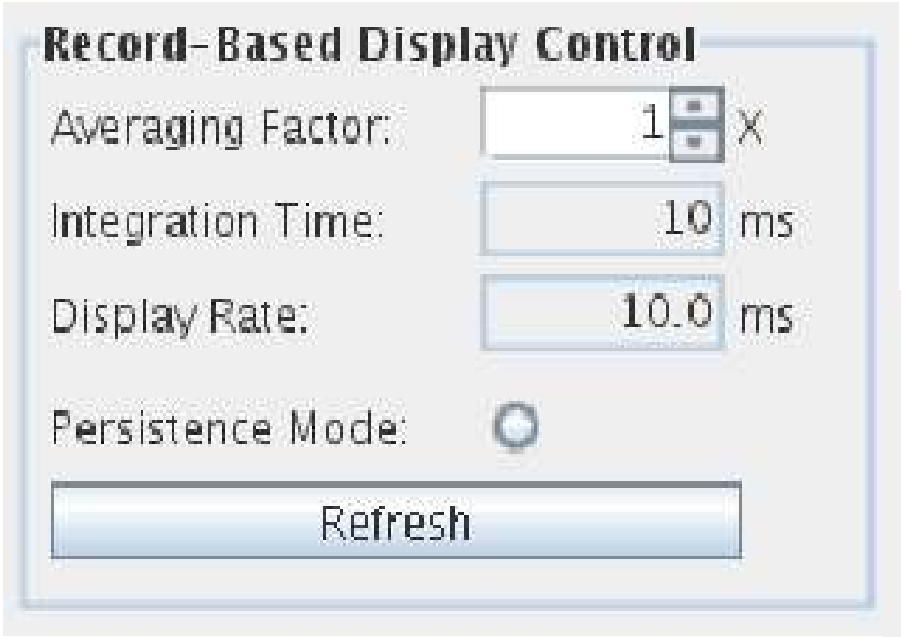
- Utilized extensively in prototype testing
- Utility likely to extend well into correlator operation

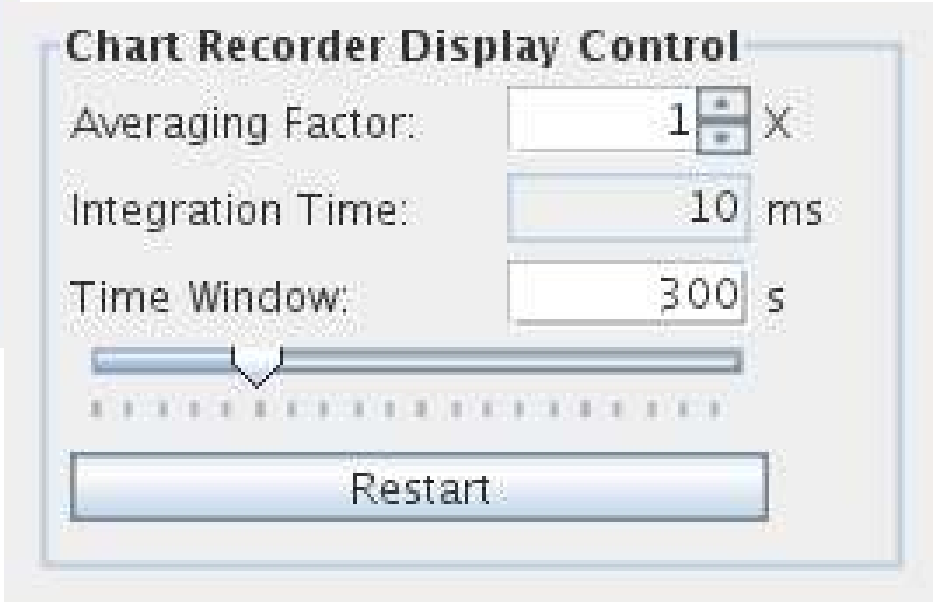
RTDD Environment

- Java
  - Platform independent
  - Self-contained application
  - Remote access to system from any desktop
  - Multiple sessions run simultaneously
- Utilizes Java 2D Graph package (USQ Dept. of Mathematics)

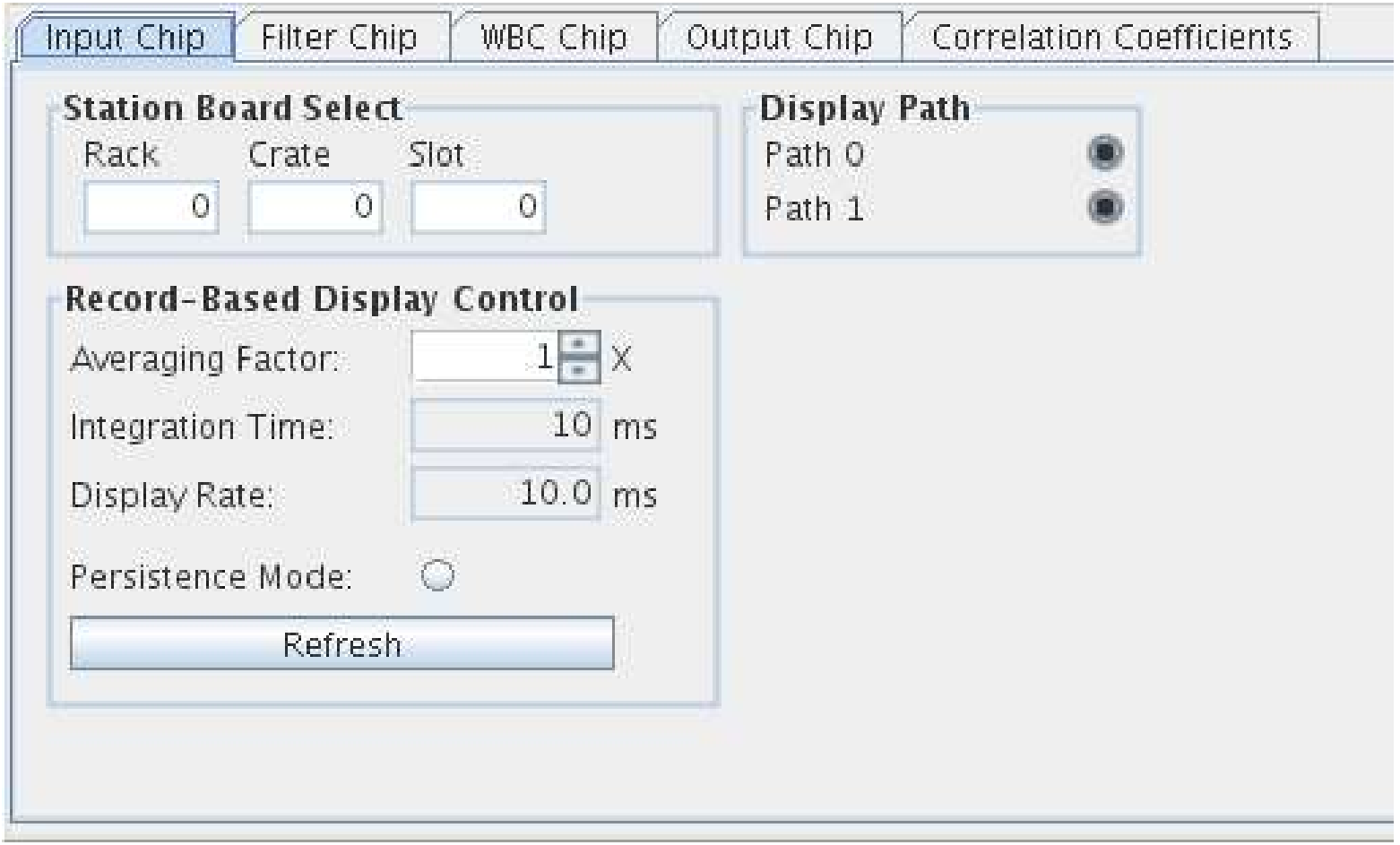

EVLA Real-Time Data Display
Screen
Input Chip
Filter Chip
WBC Chip
Output Chip
Correlation Coefficients
Station Board Select
Rack
Crate
Slot
0
0
0
Display Path
Path 0
Path 1
Record-Based Display Control
Averaging Factor:
1
X
Integration Time:
10
ms
Display Rate:
10.0
ms
Persistence Mode:
Refresh
RTDD Plot Window
Close
x10^3
60.0
40.0
20.0
0.0
The Plot
Amplitude
-100.0
-50.0
0.0
50.0
Time (ms)

RTDD Display Control

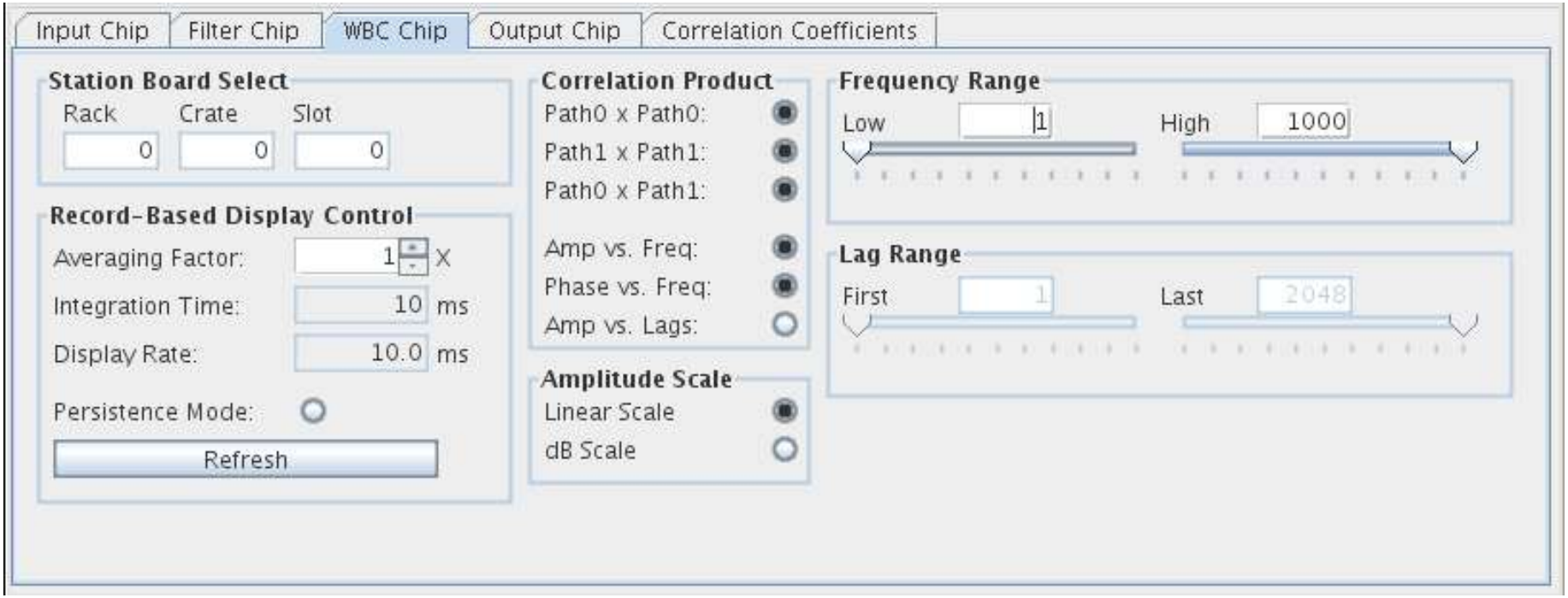




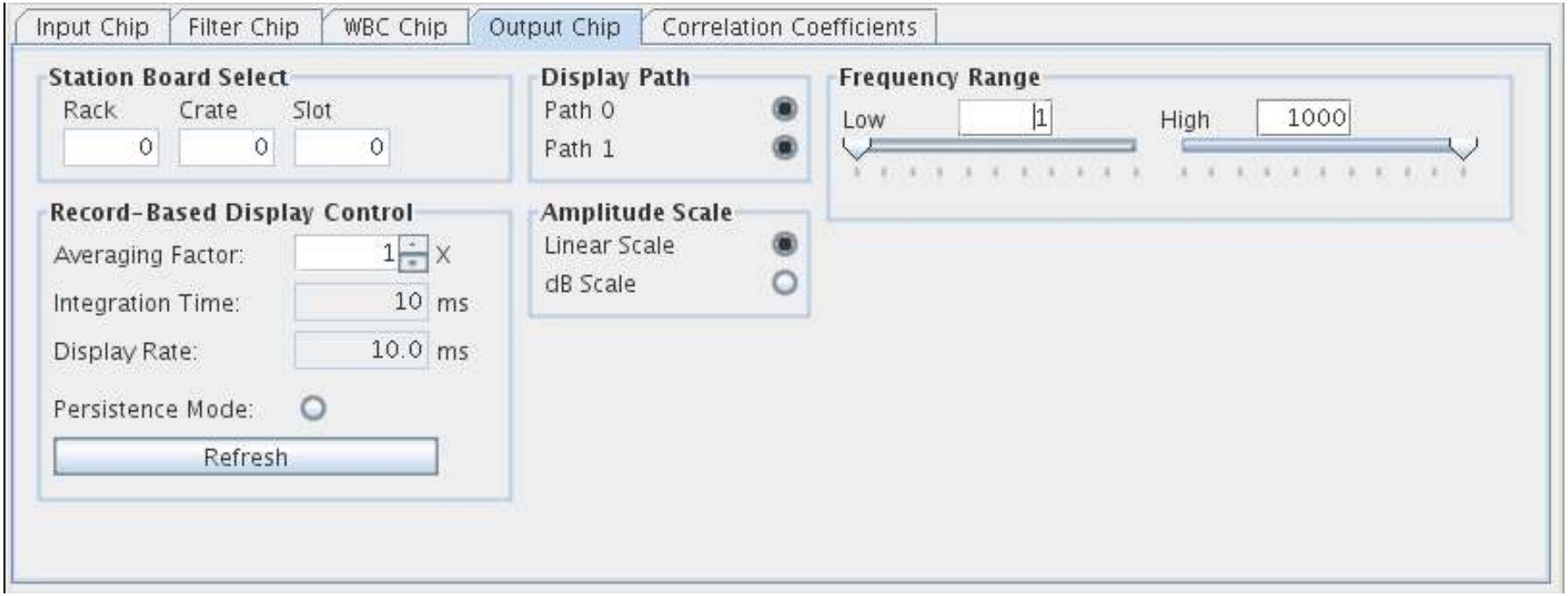
Input Chip Panel



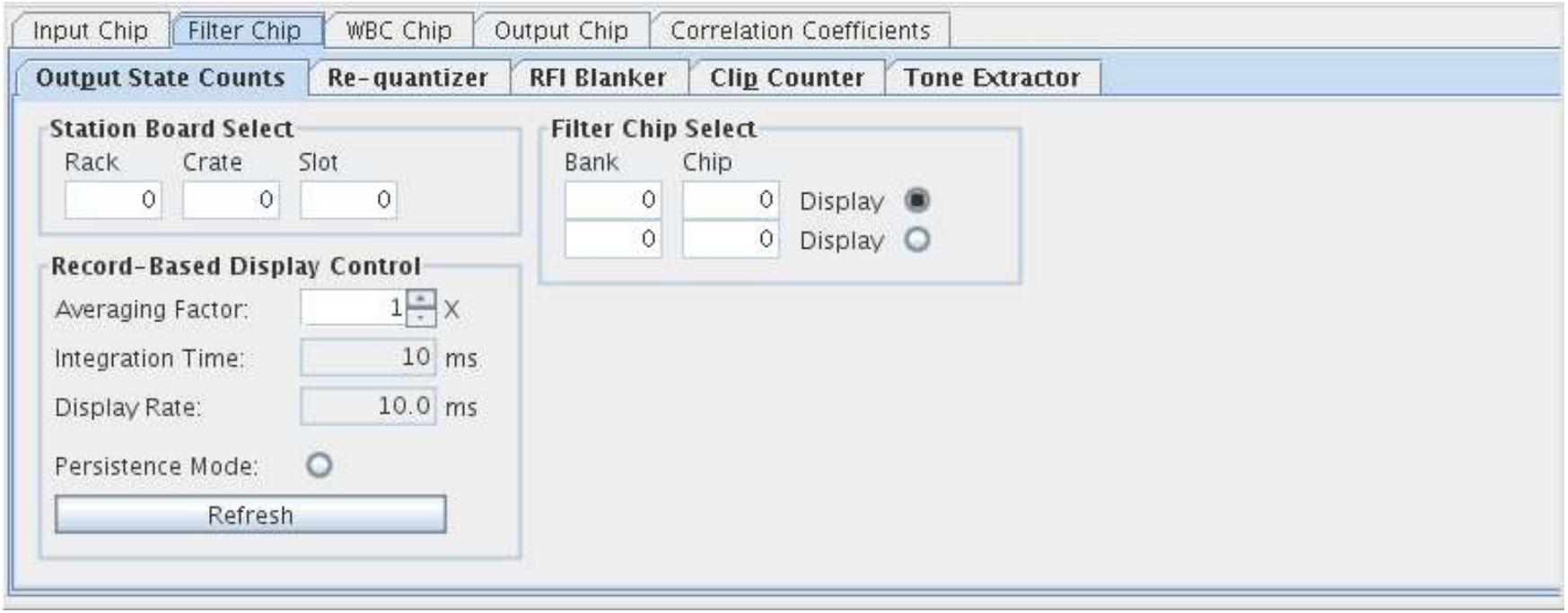
Wideband Correlator Chip Panel



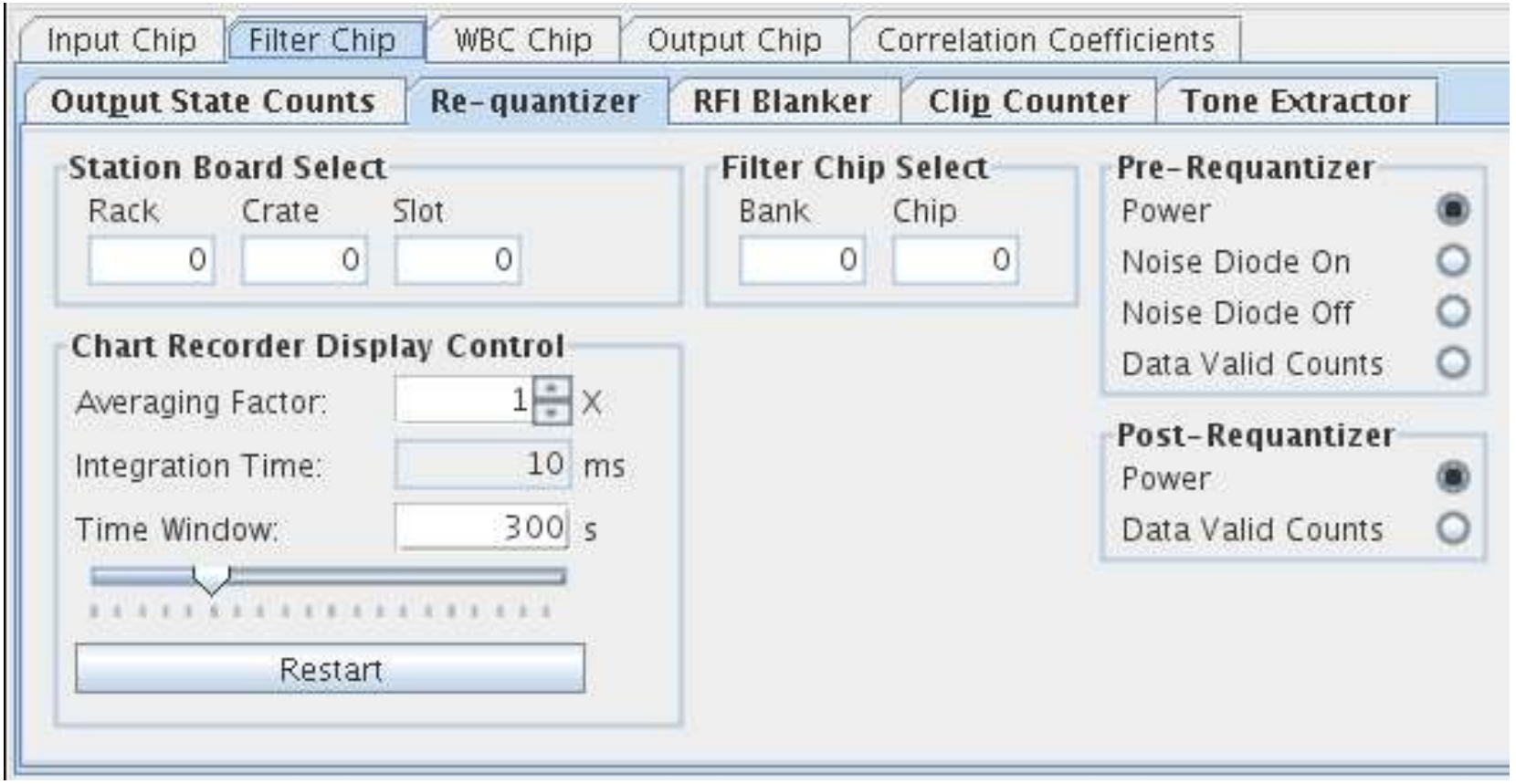
Output Chip Panel



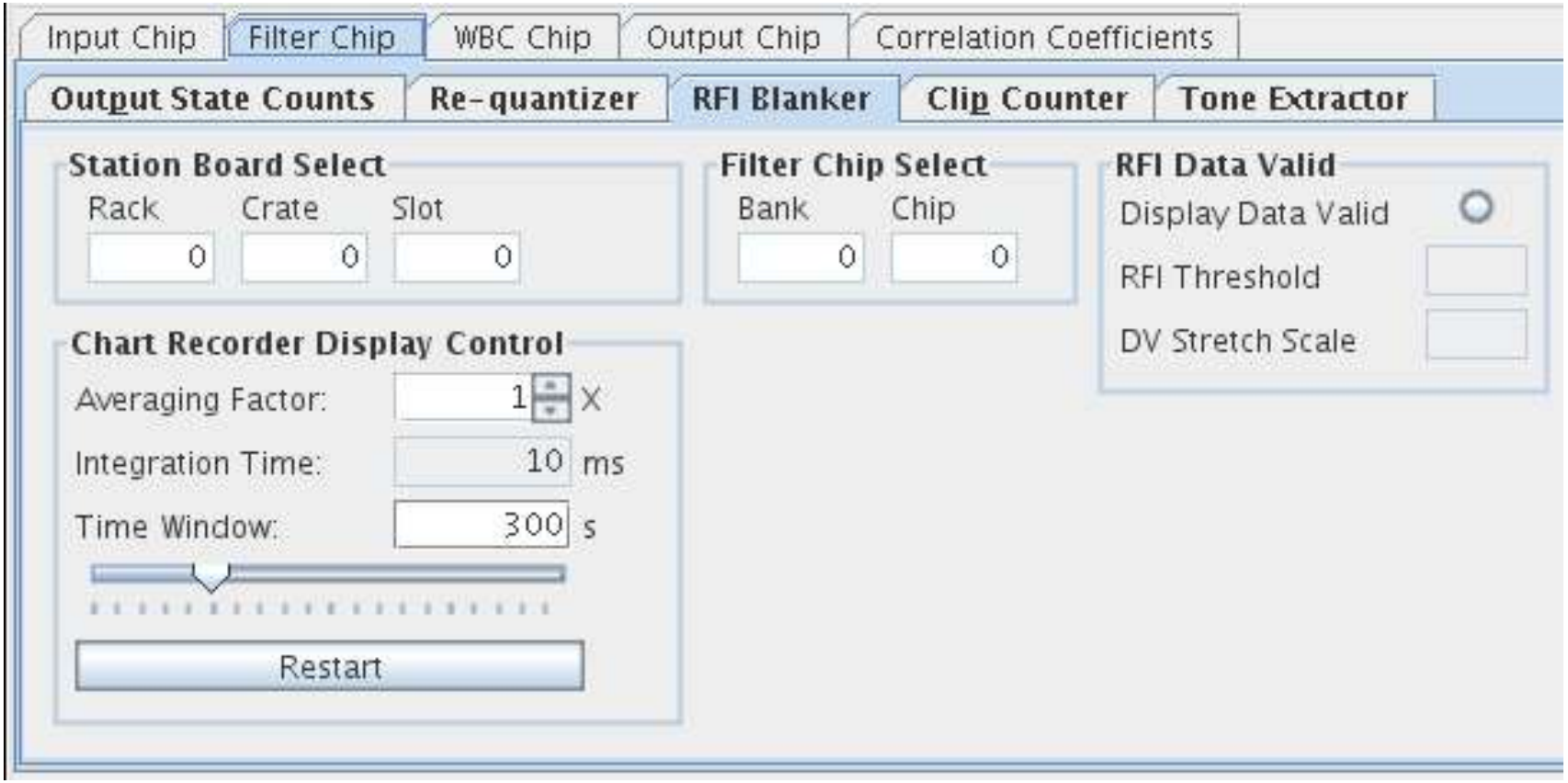
Filter Chip Panel
Output State Counts



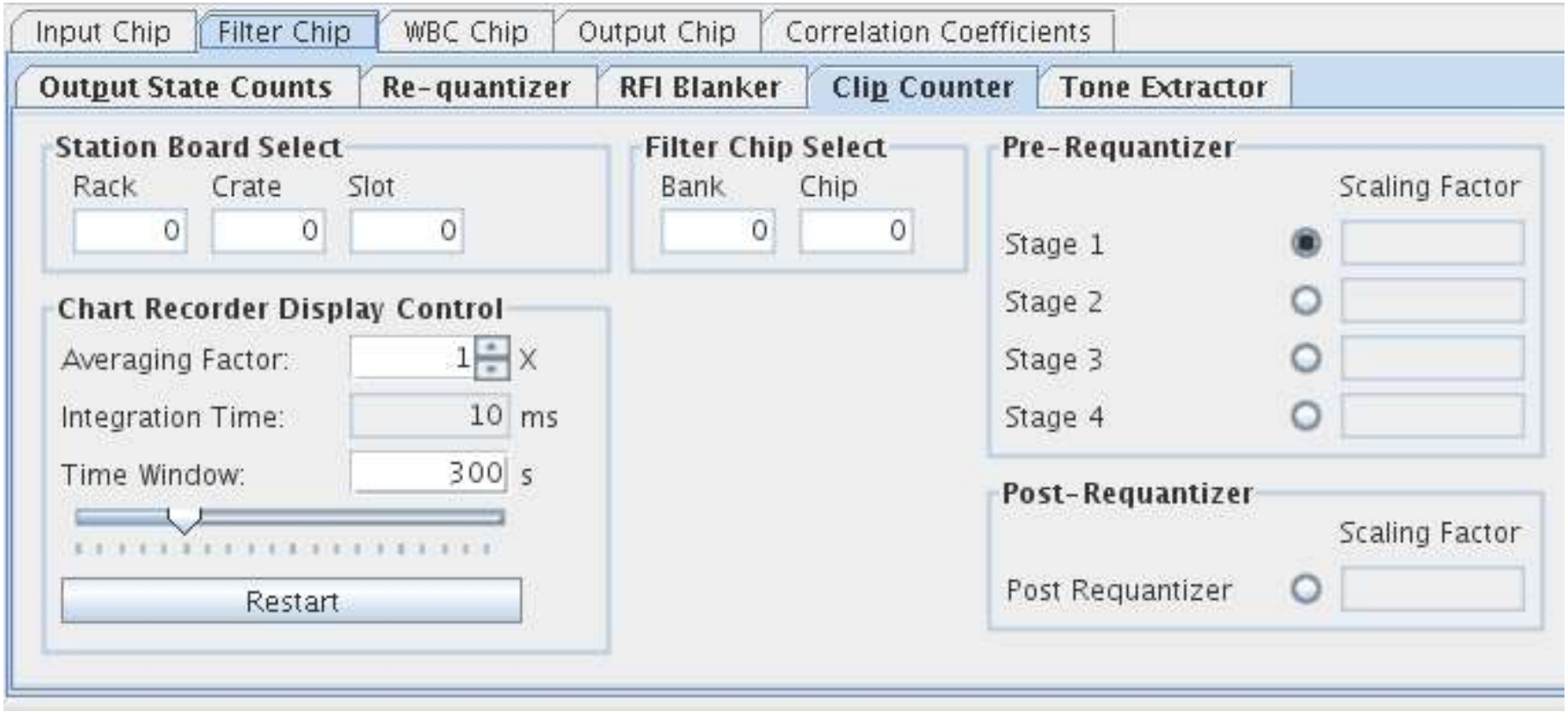
Filter Chip Panel
Re-quantizer



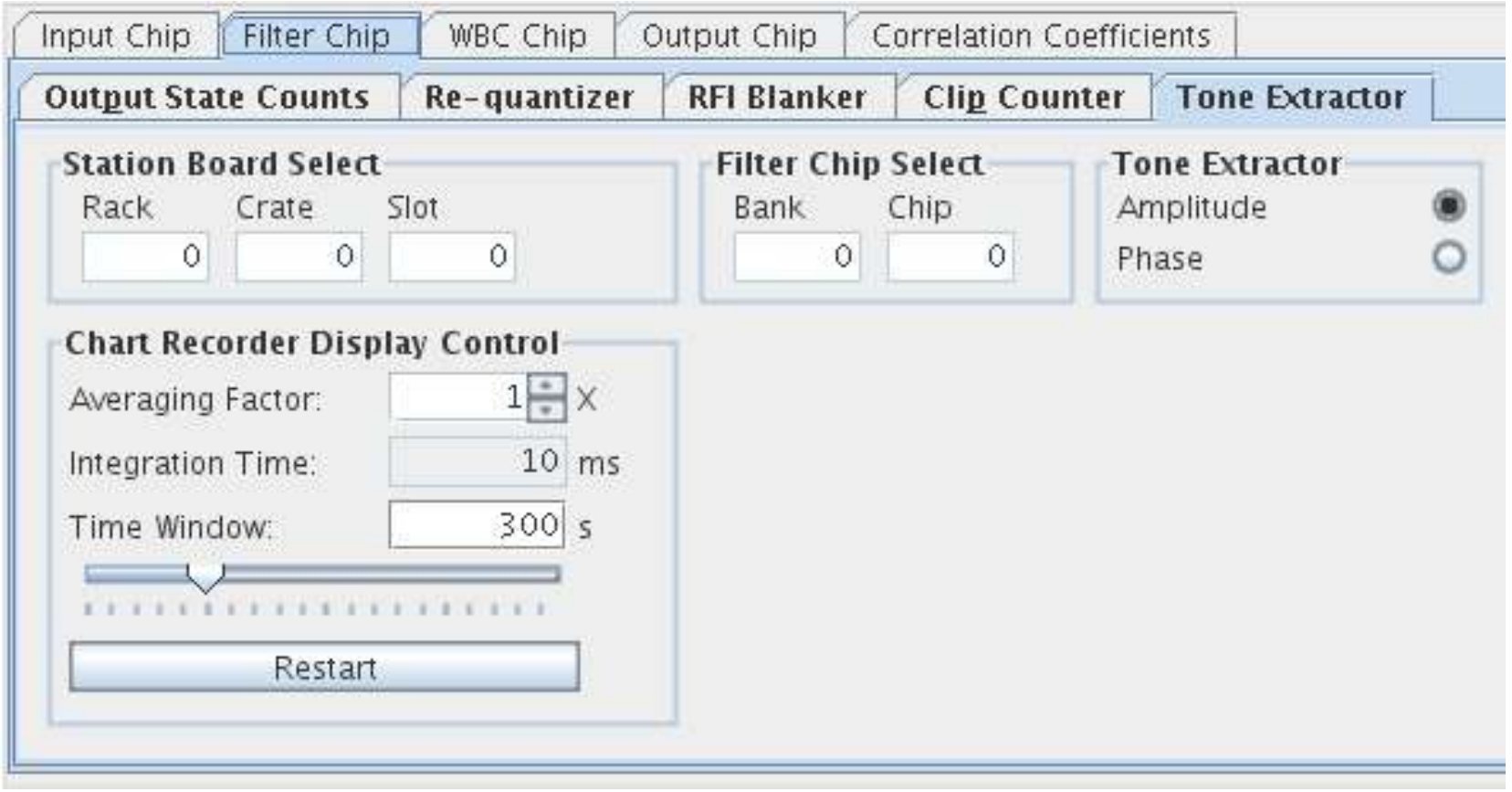
Filter Chip Panel
RFI Blanker



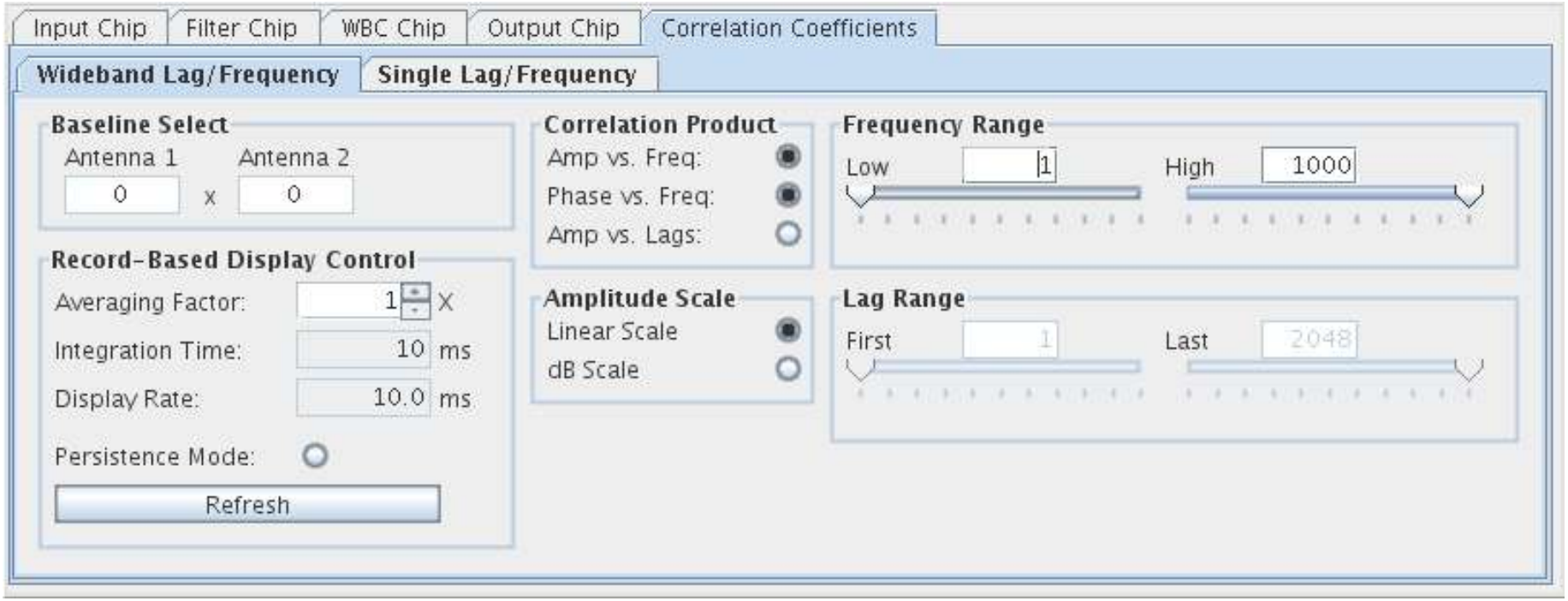
Filter Chip Panel
Clip Counter



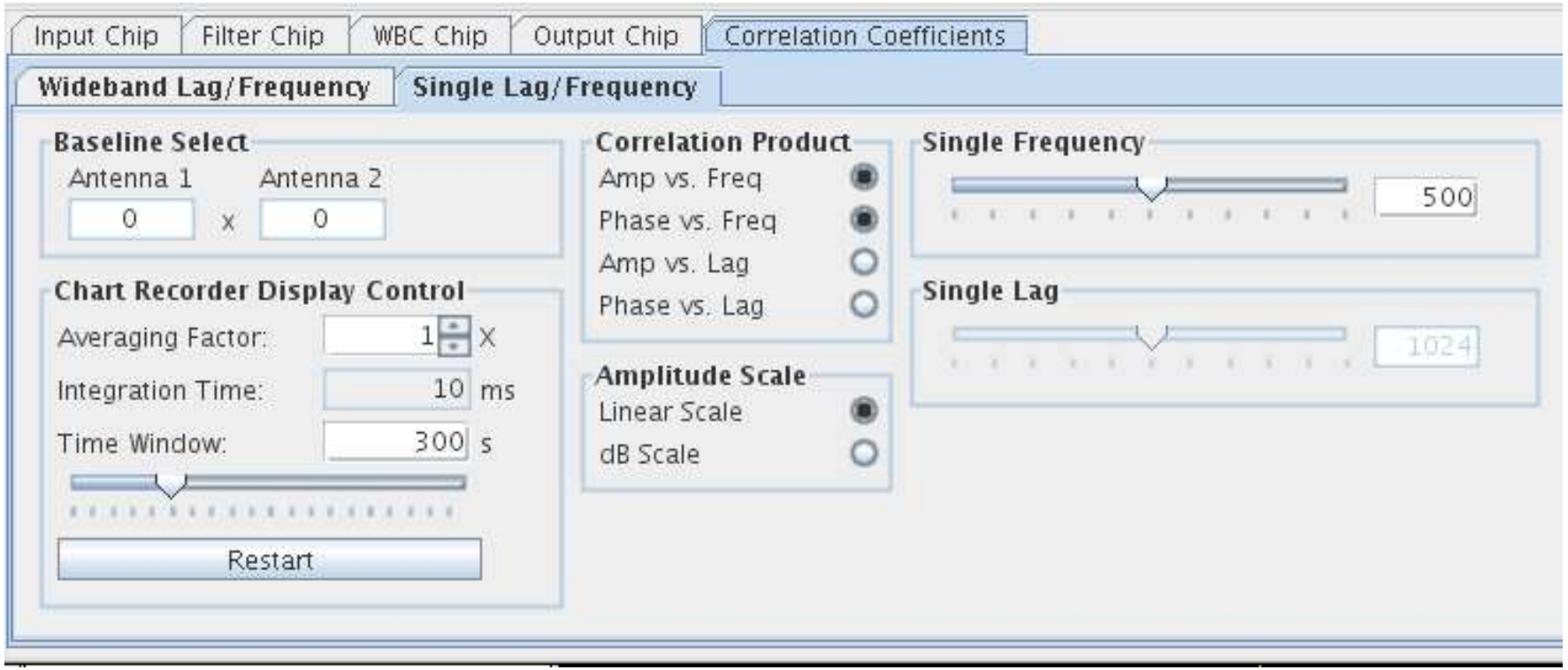
Filter Chip Panel
Tone Extractor



Correlation Coefficients
Wideband Lag/Frequency



Correlation Coefficients
Single Lag/Frequency



Outstanding Issues

- Data format for transfer?
  - ASDM?
  - Internal format (XML?)
- Connectivity/integration with correlator software
- Access & permissions via distributed network

Summary

- A powerful tool for real-time correlator diagnostics – both during prototype testing and operations
- Finalizing data transfer formats essential
- Early in design phase
  - Input & suggestions welcome!