get\_max\_tx\_delay

-returns the maximum transmit cable delay for the active transmitting elements for the given sensor table

get\_max\_rx\_delay

-returns the maximum receive cable delay for the active receiving elements for the given sensor table

get\_avg\_scan\_time

-returns the average time, in seconds, between scans

**Sensor:**

get\_max\_ant\_dist

-returns the maximum distance between active elements for the given sensor table

Key for text box color:

Black = Primary files

Green = Transmitter + Receiver Red = Range

Orange = Frequency

Light blue = Time

Dark blue = TDD + Gating

Purple = Sensor

Blue = Radar Signal

Dark green = Signal Processing

Header

File

**Transmitter + Receiver**

**Signal Processing Unit**

**Library Files**

get\_dccomponent

-returns the DC component from a tape

calc\_gate\_dist

-returns the range distances for the signal stop, start, and full power signal start, stop for the specified gate values

calc\_gate\_params

-returns the gate values for the desired signal distances

get\_index\_time

-returns the time for an index location from a vector of time domain range bins with the given time step

calc\_dopp\_shift

-returns the expected doppler shift

**Signal Processing:**

calc\_dopp\_freq\_delta

-returns the doppler frequency delta

calc\_dopp\_freq\_max

-returns the maximum doppler frequency for a given time step between scans

fft\_zero\_fill

-transforms time domain data, that had been zero filled, back to the frequency domain, and returns only the valid frequency data (i.e. no zeroed data)

**TDD + Gating:**

round\_to\_gate\_clock

-returns the pulse width (ns) to the nearest TDD clock cycle

**Range:**

calc\_max\_range

-returns the maximum unambiguous range for the specified frequency step

get\_index\_freq

-returns the frequency value for an index location from vector of frequency points with the given frequency step and start frequency

**Frequency:**

get\_freq\_index

-returns the index location for a vector of frequency points with the given frequency step and start frequency

**Radar Signal:**

calc\_path\_loss

-calculates the expected two-way path loss for the specified values

get\_target\_resp

-returns the expected responses that would be seen by the radar for a target

calc\_lambda

-returns the wavelength for a given frequency

calc\_amp

-returns the expected amplitude of a target signal

**Time:**

get\_time\_index

-returns the index location for a vector of time domain range bins with the given time step

append\_table

-appends table2 to table1

display\_table

-prints the table’s contents to the console

chart\_traces

-takes chartType, chartName, xLabel, yLabel, xPts, xMin, xMax, yMin, yMax, <dataVector>, <dataLabel1>, <dataLabel2>, then plots a chart with the traces specified

bool\_to\_int

-returns number from a bool input

int\_to\_bool

-returns bool from a number input

bool\_to\_string

-returns string from a bool input

string\_to\_bool

-returns a bool from a string input

is\_data\_file

-checks to see if the file is an APRD data file

is\_num

-checks to see if variable is a number

is\_bool

-checks to see if variable is a bool

get\_comma\_sep\_nums

-takes a string of comma separated numbers and returns a vector of the numbers

calc\_sig\_rms

-returns the RMS of a time domain signal

calc\_rms

-returns the calculated RMS from a vector of values

get\_curr\_pos\_breath

-returns the current position of a breathing target rate = rate of breathing motion in cycles per minute displacement = size of breathing motion in meters

get\_curr\_pos

-returns the position of a target from a given initial position, velocity of motion, angle of motion, the difference in time since the initial time

get\_mag\_cv

-returns a vector of magnitudes from a complex vector of quadrature values

min\_max\_compare\_v

-returns a vector of the maximum values from two vectors

dist\_point\_to\_line

-returns the closest distance between a point and a line

dist3d

-returns the absolute distance between 2 points in 3D space

dist2d

-returns the absolute distance between 2 points in 2D space

order\_2\_n

-returns 2^n

n2\_order\_floor

-returns n for the order of the closest previous factor of 2^n

n2\_order

-returns n for the order of the next factor of 2^n

Math

Scan

String

get\_combo\_tape\_i

-returns a vector of scan indexes for scans of the specified TX-RX combination

get\_clip\_tape\_i

-returns a vector of scan indexes for the specified range of frames

get\_combo\_table

-returns a table of all valid combinations in the input tape

Min\_max\_tape\_freq\_dom

-returns the vectors for the minimum and maximum frequency values for the input tape

get\_frame

-returns a tape of a single specified frame

get\_combo\_tape

-returns a tape of only the specified combinations

get\_last\_n\_frames\_clip\_tape

-returns a tape of only the last N frames

get\_clip\_tape

-returns a tape of only the specified range of frames

get\_ts\_clip\_tape

-returns a tape of only the specified range of frames

time\_window\_scan

-returns a tape that has had the data time windowed

scale\_tape

-returns a tape that is a tape scaled by a specified factor

norm\_tape

-returns a tape that is the output of having a tape normalized by a frame from another tape

avg\_tape

-returns a tape of a single frame with the average of all the combos from the input tape

round

-returns the input number rounded to the nearest whole number

freq\_slice\_scan

-returns a scan that has had its frequency data sliced to the specified frequency band

output\_header

-writes the header of a data file out as a separate text file

file\_output

-writes a chart to file

chop\_extensions

-removes the file type extension from the end of a filename

data\_file\_out

-write a data tape to a file

file\_exists

-returns a bool indicating of a file exists.

deduplicate\_list

-takes input list and returns a deduplicated version of the list

dir\_exists

-returns a bool indicating of a file exists.

Tape

Type

Plot

Table

Radar