FGI-GSRx v2.0.0 Release Notes

New Features in v2.0.1

(1) A new modernized signal is supported: GPS L1C.
(2) New functions are added to facilitate GPS L1C receiver implementation. All the changes with respect to the previous v2.0.0 are mentioned below in Table 1.

Table 1: Changes made on v2.0.0 to reach this new v2.0.1

Function Name	Remarks	Type of Change
/param/getSystemParameters.m	GPS L1C signal parameters and few other CNAV2 message related constants are added.	Modification
/param/default_param_GPSL1C.txt	A default parameter text file is given for the users to run FGI-GSRx receiver in GPS L1C only mode.	New addition
/param/ defaultReceiverConfiguration.txt	GPS L1C user parameters are added in the 'defaultReceiverConfiguration.txt' configuration file.	Modification
/acq/acquireSignal.m	Modifications are made to acquire GPS L1C signal. Currently, the receiver attempts an acquisition with the pilot channel.	Modification
/mod/gpsl1cDGeneratePrnCode.m	GPS L1C PRN code generation for data channel.	New addition
/mod/gpsl1cDModulatePrnCode.m	Based on user's BOC modulation option (either SinBOC or TMBOC), GPS L1 data channel will be modulated accordingly.	New addition
/mod/gpsl1cPGeneratePrnCode.m	GPS L1C PRN code generation for pilot channel.	New addition
/mod/gpsl1cPModulatePrnCode.m	Based on user's BOC modulation option (either SinBOC or TMBOC), GPS L1 pilot channel will be modulated accordingly.	New addition
/track/allocateTrackChannel.m	One new parameter is New addition: the prompt correlation finger for GPS L1C data channel. This correlation values from this prompt finger will be later served as navigation data bits.	Modification
/track/allocateTrackChannelHeader.m	Some modifications are made to introduce some new variables that contain both data and pilot codes, that will be later used for correlation.	Modification
/track/gpsl1csetTrackingTable.m	A function setting a tracking table for GPS L1C receiver tracking.	New addition
/track/gpsl1cUpdateChannelState.m	A function that updates the channel status (PULL_IN, COARSE_TRACKING or FINE_TRACKING) for GPS L1C receiver tracking.	New addition
/corr/carrierMixing.m	Prompt correlation is New addition for GPS L1C data channel.	Modification
/corr/corrFingerGeneration.m	Data channel correlation finger is New addition for GPS L1C.	Modification
/obs/getTransmitTime.m	One code line (line 80) now ends with ';'.	Modification
/frame/doFrameDecoding.m	Minor modification is made to accommodate GPS L1 navigation message decoding from the data channel.	Modification

/frame/gpsl1cDecodeEphemeris.m	Ephemeris decoding function for GPS L1C data channel	New addition
/frame/gpsl1cNavParityCheck.m	This function is added to maintain the coherence of the structure of FGI-GSRx. For GPS L1C, CRC check is performed conveniently inside the function 'gpsl1cDecodeEphemeris.m'.	New addition
/frame/gpsl1cGenerateOverlay.m	This function generates overlay code for GPS L1C signal.	New addition
/frame/findPreambles.m	Required modifications were made due to the addition of GPS L1C signal.	Modification
/frame/gpsl1cDecoding/momEstimator.m	This function is used to estimate symbol level and variance from input symbol stream using a Method of Moments (MOM). This is useful for initializing symbol log-likelihood ratios for the implemented LDPC decoder.	New addition
/frame/gpsl1cDecoding/TOIcoder.m	This function is used to encode GPS L1C CNAV-2 Time Of Interval (TOI) values.	New addition
/frame/gpsl1cDecoding/reallyFastLDPCdecoder.m	This function is used to decoded binary-LDPC encoded messages like the CNAV-2 subframes 2 and 3	New addition
/frame/gpsl1cDecoding/H2.mat	Low-density parity check matrix for CNAV-2 subframe 2	New addition
/frame/gpsl1cDecoding/H3.mat	Low-density parity check matrix for CNAV-2 subframe 3	New addition
/sat/gpsl1cSatpos.m	Satellite position computation function for GPS L1C signal	New addition
/main/gsrx.mat	Removed lines that activated and displayed MATLAB profiler when running the receiver	Modification