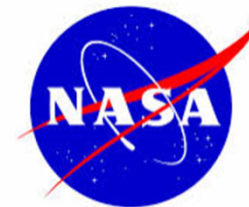




Second Generation Beacon (SGB) Update

SARSAT Beacon Manufacturers Workshop 2023

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Agenda

- Test Facility Extension of Capability Status
- SAR/GPS Update
- NASA SGB Test Tools Overview



Test Facility Extension of Capability Status



EPG

EPG Current Status:

- SGBs, excluding ELT(DT)s: Approved to conduct type approval testing, CSC-67
- SGB ELT(DT)s: Approved (interim approval) to test SGB ELT(DT)s as of January 2023. The interim approval was granted by the Parties until a recommendation can be provided from the JC to the Council to complete the approval process.
- FGB ELT(DT)s: EPG's capability extension application is in review with the ETF Panel.



International Test Facilities

TUV SUD:

- FGB ELT(DT)s: Approved to test FGB ELT(DT)s. CSC-67

Other Test Facilities:

- When surveyed by the Secretariat prior to JC-37, multiple labs indicated that they intend to submit application packages to the ETF Panel in 2023 for FGB ELT(DT)s, SGBs, and SGB ELT(DT)s.



SAR/GPS Status



SAR/GPS

- Contracts were awarded in 2019:
 - USAF to LM for 22 GPS III F SVs
 - Canadian DND to MDA for the SAR repeater payload
- NASA is providing engineering expertise for mission assurance across all phases
- Flight Model production and delivery
 - Development milestones completed in 2022: EQM testing, EM delivery, and CDR.
 - Production of the first two flight models is underway at MDA.
 - Delivery to LM is planned for late 2023/early 2024.
 - On track to fly on GPS III F SV11 in 2025/2026.





Overview of NASA's SGB Test Tools



NASA SGB Test Tools Background

- The tools are Matlab processing scripts that operate on IQ samples acquired from test equipment.
- The description of the processing components can be found in the README file and “T21 signal processing scripts description.docx”
- [GitHub - nasa/Second-Generation-Beacon-Performance-Analysis-Test-Tools](https://github.com/nasa/Second-Generation-Beacon-Performance-Analysis-Test-Tools) (<https://github.com/nasa/Second-Generation-Beacon-Performance-Analysis-Test-Tools>)
- Updates to the test tools will be provided through the GitHub site. Updates may be posted to correct an error, or to comply with an update in T.21.



GitHub Site

The screenshot shows a GitHub repository page for 'nasa/Second-Generation-Beacon-Performance-Analysis-Test-Tools'. The repository is public and has 18 commits, 0 stars, 3 watchers, and 0 forks. The repository is on the 'main' branch. The file list includes 'matlab', 'myMediaFolder', and 'README.md'. The 'matlab' folder is highlighted with a red arrow. The README file is open, showing the title 'Concentric Real Time, LLC' and the text 'NASA Second Generation Beacon Performance Analysis Test Tools'. The README also includes a version number '1.3' and a date '2-3-2020'. The repository is licensed under the NASA Open Source Agreement Version 1.3. The right sidebar shows the 'About' section with no description, 'Releases' section with no releases published, 'Packages' section with no packages published, 'Contributors' section with 2 contributors (rsbovard and TKantz), and 'Languages' section with 100.0% MATLAB.



Getting Started

- Create a development directory to save the files.
- Extract the files into the chosen directory.
 - Run the top level file “doit.m”
 - This will process an example signature capture “testburst.mat” and output the measurement result figures and Excel spreadsheets.
- Data capture of beacon bursts can be accomplished with a real time spectrum analyzer that is capable of outputting the data in the .mat format.
- Reference the README file for detailed instructions:
 - Open the “doit.m” file and edit the User Inputs section
 - Pcal is the power calibration setting to account for attenuators/couplers in line
 - Xdir is the path to the directory with the .mat burst files
 - Once the “doit.m” script is modified, save the script and run it. The scripts will read the .mat file(s) and process them. Subdirectories will be created in the “xdir” path which contains the measurements made on the burst.