NASCTN
National Advanced Spectrum and Communications Test Network

First Quarter 2017
Issue 1

Perspectives

A message from NASCTN's Program Manager, Dr. Michael Janezic:

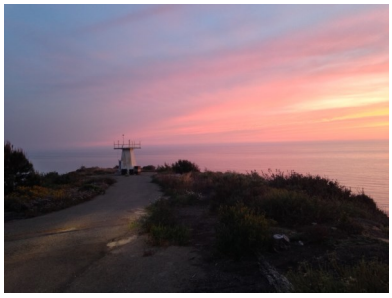
We are excited to kick off 2017 with the inaugural edition of the quarterly newsletter for the National Advanced Spectrum and Communications Test Network (NASCTN). In this newsletter, we provide some background on NASCTN and some highlights from NASCTN's three current spectrum-sharing projects, which were initiated in 2016. Besides working towards completion of these projects later this year, we are also working to expand our NASCTN network to include more engineering capabilities and facilities that could be used in future projects. We are looking forward to the challenges of 2017 with great enthusiasm.

Background

The National Institute of Standards and Technology (NIST), the National Telecommunications and Information Administration (NTIA), and the Department of Defense Chief Information Officer (DoD CIO) chartered NASCTN to improve spectrum-sharing opportunities through accurate, reliable, and unbiased test measurements and analyses. NASCTN's mission is to provide the robust test processes and validated measurement data necessary to develop, evaluate, and deploy spectrum sharing technologies that can increase access to spectrum by both federal agencies and non-federal spectrum users. NASCTN membership is open to government, industry, and academia participation. More in-depth information about how your organization can join NASCTN or how you can submit a spectrum-sharing project proposal can be obtained by contacting the NASCTN Program Manager, Dr. Michael Janezic (michael.janezic@nist.gov) or visiting the NASCTN website[1]. The signed charter and other documents can also be found on the NASCTN website[1].

3.5 GHz Radar Waveform Measurement Project

(initially proposed by Federated Wireless, LLC)



Project Goal: Develop a test methodology to collect and analyze high-fidelity digital waveforms of radars that operate in the 3.5 GHz band. In coordination with DoD, this project will inform the development and certification of Environmental Sensing Capability (ESC)/Spectrum Access Sharing (SAS) technologies that are necessary to coordinate the use of the spectrum in this band.

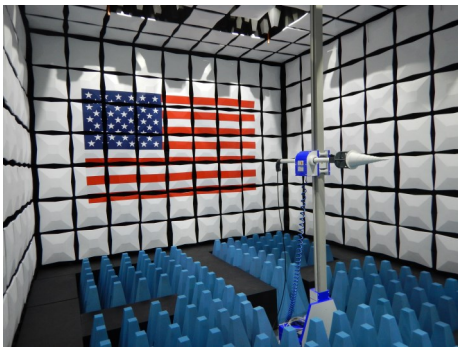
Status Update: NASCTN collected high quality In-Phase and Quadrature (I/Q) data in two separate data measurement campaigns. The first occurred in Point Loma, CA from March-April 2016. This effort produced over 70TB of Radar 1 waveform captures. NASCTN provided a subset of this information (35 individual samples) to Federal regulators and potential ESC/SAS applicants on 29 September 2016. The second data collection activity occurred at Ft. Story, VA from August-October 2016. NASCTN is currently analyzing the data and is preparing two test reports for release in 2017 —one for the Point Loma, CA measurements and other for the Fort Story, VA measurements.

Next Steps: NASCTN plans to publish reports associated with the two measurement campaigns.

[1] https://www.nist.gov/ctl/national-advanced-spectrum-and-communications-test-network-nasctn

Impact of LTE Signals on GPS Receivers Project

(proposed by Ligado Networks, LLC)



Project Goal: Develop a test methodology and perform measurements to investigate the effects of LTE signals on GPS receivers that are operating in nearby frequency bands.

Status Update: NASCTN established a technical team that developed the test plan in the summer of 2016. The team vetted the test plan with Federal agencies, spectrum regulators and the GPS manufacturers, and then completed the measurements in October. NASCTN hosted two interagency briefings, both held in Washington D.C., to brief Federal agencies and spectrum regulators on the test methodology and to overview preliminary measurement data collected during the study. NASCTN has prepared a draft test report, which will include the detailed test methodology used in the study as well as the measurement results.

Next Steps: The NASCTN Report and the measurement data will be publically available in February, 2017.

LTE Out-of-Band Emissions in the AWS-3 Band

(proposed by Edwards Air Force Base)

Test Objective: Develop the test processes and perform out-of-band emissions measurements of LTE systems that will be operating in the AWS-3 band so that DoD can mitigate potential interference effects on their aeronautical mobile telemetry (AMT) systems.

Status Update: NASCTN developed a two-phase test plan since AWS-3 band LTE equipment was not commercially available when this project began. The first phase conducted the planned measurements on LTE equipment operating in Band 3. This band is close to the desired AWS-3 band and equipment was available for testing. Phase I validated the test methodology and provided improvements to the test plan for phase II. NASCTN released the phase II test plan for community review in October and adjudicated comments in November. NASCTN is also working with LTE manufacturers and other stakeholders to identify AWS-3 LTE equipment available for testing. Currently, NASCTN identified two User Equipment devices and one eNodeB for testing.

Next Steps: NASCTN will complete the interagency agreement and begin testing in early 2017. NASCTN continues to coordinate with equipment vendors for additional AWS-3 LTE equipment for testing.

Pending NASCTN Proposals

Aggregate LTE Interference Levels: NASCTN is reviewing a proposal to measure and validate aggregate LTE transmission models to better understand the impact of large numbers of LTE equipment in a geographic area.

1780 MHz Co-Channel Interference Levels: NASCTN is reviewing a proposal to evaluate co-channel interference between federal LTE users and a newly developed advanced training waveform.