



**UNITED STATES DEPARTMENT OF COMMERCE**  
**The Assistant Secretary for Communications**  
**and Information**  
Washington, D.C. 20230

SEP 9 2011

The Honorable William Lynn  
Deputy Secretary  
U.S. Department of Defense  
1010 Defense Pentagon  
Room 3E944  
Washington, D.C. 20301-6000

The Honorable John Porcari  
Deputy Secretary  
U.S. Department of Transportation  
1200 New Jersey Ave., SE  
Washington, D.C. 20590

Dear Secretaries Lynn and Porcari:

On behalf of the National Telecommunications and Information Administration (NTIA), I would like to request that the Executive Steering Group of the interagency National Executive Committee for Space-Based Positioning, Navigation and Timing (ExCom) work with LightSquared to develop as expeditiously as possible a joint testing plan to validate data on the performance of cellular and personal/general navigation Global Positioning System (GPS) receivers in light of LightSquared's modified proposal to confine its operations to the lower 10 MHz signal (1526-1536 MHz) of the Mobile-Satellite Services (MSS) frequency band.

For reasons discussed below, NTIA requests that the program be limited largely to cellular and personal/general-navigation receivers and that the program be designed to allow for completion of testing and analysis by November 30. Based on the data collected to date, NTIA expects that limited further testing (i) will confirm the validity of the prior measurements collected in testing by the Technical Working Group (TWG) evaluating LightSquared's modified operating proposal and (ii) will provide NTIA and the federal agencies with the necessary data to determine what, if any, additional operating restriction is necessary in order to mitigate remaining interference issues related to cellular and personal/general-navigation receivers. As described below, there will later need to be a second phase of testing to evaluate proposed mitigation plans for high-precision and timing receivers which would commence once LightSquared develops a filtering solution to avoid interference with those classes of devices.

Before setting out the parameters of this testing program, I first want to update you on our recent activities to evaluate the potential impacts of LightSquared operations on GPS receivers. NTIA has held several meetings with representatives from the federal agencies and LightSquared to discuss these impacts, focusing on the potential impacts to high precision, timing, aviation, space, cellular, and personal/general navigation GPS receiver applications. Taking each of these categories in turn, here is the current status of our review of the potential impacts.

All parties, including LightSquared, have agreed that LightSquared's operations in the lower 10 MHz signal will cause unacceptable interference to the **high-precision receivers** tested by the TWG. Accordingly, LightSquared is undertaking to procure the design and manufacture of a filter to mitigate these unacceptable impacts. LightSquared has acknowledged in meetings with NTIA that it will not commence commercial operations unless and until the federal agencies test the filter and conclude that it is effective at eliminating unacceptable overload without degrading the precision performance of the receivers. Given this commitment, we see no reason for any further testing of high-precision receivers until LightSquared presents its filtering solution to the Federal agencies for testing and evaluation. At that time, the federal agencies will need to develop and execute a plan to test and analyze LightSquared's proposed mitigation.

The TWG performed measurements assessing the potential impact of the lower 10 MHz signal on **timing receivers**. As part of this work, LightSquared identified the PCTEL antenna as a possible solution to mitigate interference to timing receivers. Although the PCTEL antenna showed promise in mitigating interference, the TWG did not examine the impact it would have on timing receiver performance. Also, the PCTEL antenna which employs a narrowband filter may not mitigate interference to wideband precision timing receivers used by the federal agencies without severely impacting their performance. LightSquared acknowledges that the federal agencies need to perform a more rigorous review of the effectiveness of the PCTEL antenna in mitigating interference to timing receivers without degrading their performance.

LightSquared and the U.S. Department of Transportation have informed us that LightSquared has continued to discuss and analyze data regarding impacts to **aviation receivers** with the Federal Aviation Administration (FAA). We see no reason to request additional testing of these devices by ExCom at this time and recommend that the FAA continue to work this issue directly with LightSquared. Of course, once FAA concludes its work, we would expect that it would share its analysis and conclusions with the ExCom.

National Aeronautics and Space Administration (NASA) has performed testing on its current and future **space-based receivers**. These tests indicate that current receivers are not impacted by the lower 10 MHz signal but that newer receivers may be affected. NASA is doing additional work to determine whether it can make modifications in the design of these not-yet-deployed receivers to mitigate this potential interference without impacting their mission. As with the aviation devices, we see no reason for ExCom to undertake any testing of these devices given the work already underway at NASA subject to later review by ExCom.

Without waiting for the interference issues to be resolved relating to high-precision and timing receivers, we would like to move forward to reach resolution of any remaining federal agency concerns with respect to the **cellular and personal/general-navigation receivers**. The TWG performed measurements to determine the power level at which interference occurred from the lower 10 MHz signal to around 70 of these receivers. We understand that some of the federal agencies believe those measurements were limited in time and scope. Accordingly, we request that the test plan include a retest of the minimum number of devices from the original test necessary to prove statistically that the earlier test results are valid.

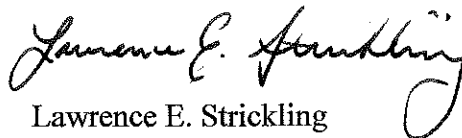
In addition, the TWG tests demonstrated that some receivers were more resistant than others to the lower 10 MHz signal. We request that the test plan include a retest of the 10 devices that were shown by the TWG testing to be more susceptible to the lower 10 MHz scenario. That data, combined with information the FCC is collecting on receiver design and specifications, will allow us to understand more completely the interference interaction and causation and provide the necessary information to determine whether we need to propose any additional operating condition on LightSquared to mitigate overload from LightSquared base stations to these types of devices.

Beyond these requests, we understand that the federal agencies may wish to include other cellular or personal/general-navigation devices for testing. For example, if there is a receiver available that utilizes the L1C signal, testing of which would yield results the federal agencies would find authoritative, we would urge that it be included in the test plan. The same is true if there are receivers available that are designed to use multiple radionavigation-satellite service signals, e.g., Galileo. As a practical matter, the ExCom can include other receivers in the test plan provided the testing and analysis can be completed by November 30. We want to do what is necessary so that our recommendations to the FCC regarding cellular and personal/general navigation GPS receivers can be conclusive and final. To that end, I want to make it clear that our recommendations will be based on NTIA standard definitions and methodologies for assessing interference. We will not accept conclusions or analysis based on propagation models and other tools that depart from our standard methodologies. Our technical experts are available to explain our tools to the extent our methodologies are not already clearly understood.

In addition, as previously indicated, the federal agencies will want to perform an analysis of the effectiveness of the PCTEL antenna in mitigating interference to timing receivers used by the agencies. We suggest that the ExCom consider moving forward now with that analysis but, given the open issues that remain with respect to precision and timing receivers, this work need not be completed by November 30.

Please submit all final test reports to NTIA. If you have any questions regarding this request, please do not hesitate to contact me or Karl Nebbia, NTIA Associate Administrator of the Office of Spectrum Management.

Sincerely,



Lawrence E. Strickling

cc: Teri Takai, DOD  
Joel Szabat, DOT