



July 20, 2011

Julius Genachowski, Chairman
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Comments on LightSquared's TWGR; IB Docket No. 11-109

Dear Chairman Genachowski:

The National Agricultural Aviation Association (NAAA) appreciates the opportunity to comment on LightSquared's Technical Working Group Report, IB Docket No. 11-109. As an industry that depends heavily on the Global Positioning System (GPS) we are very concerned with the findings of the report and the implications of LightSquared's proposed broadband network on GPS users nationwide. We urge you to carefully consider our concerns outlined below before granting the start-up company approval for providing commercial services in the U.S.

NAAA consists of more than 1,600 members in 46 states, and represents the interests of small business owners and pilots licensed as commercial applicators that use aircraft to enhance the production of food, fiber and bio-fuel; protect forestry; protect waterways, pastureland and rangeland from invasive species; and control health-threatening pests. Pesticides and their timely application play a vital role in protecting our food and water supply, public health, natural resources, infrastructure and green spaces. Approximately 18 percent of crop protection products applied in the U.S. are applied by air. Aerial application is often the only, and/or most economic method for timely pesticide application. It permits large and often remote areas to be treated rapidly, thus ensuring timely and efficient service. When surface water, wet soil conditions, rolling terrain or dense plant foliage prevents the use of other methods of application, aerial application may be the only remaining method of treatment. Additionally, aerial application is conducive to higher crop yields, as it is non-disruptive to the crop and causes no soil compaction, hence preventing soil runoff. This results in more food and fiber being produced using less land allowing the land to be repurposed for other uses, including habitat preservation

for endangered and/or threatened plant, animal and aquatic species; and for preserving vegetative ecosystems important to the sequestration of carbon.

GPS technology is a necessity in agricultural aviation, with nine out of 10 aerial application operators and pilots using GPS equipment. It provides swath guidance to within one meter accuracy of where ag pilots want to place chemicals, crop protection products, seeds or fertilizers. This innovation in the industry has allowed for considerably improved occupational safety, as there is no longer a need for human flaggers. According to a 2011 NAAA survey, 93 percent of the aerial application industry use GPS for swath guidance with only 1 percent still using human flaggers. Twenty years ago this would not have been the case. The GPS unit also works in conjunction with Geographical Information System (GIS) software that some pilots use, providing a precise map of an exact field location using infrared technology to determine the various field conditions. These conditions may include moisture levels, crop health, soil nutrient conditions and pest populations. The GPS unit, combined with GIS software capabilities and the variable rate flow controller, allow the product to be applied in varying dosages according to crop needs in the field and targeting the material to be delivered only where it's needed. This minimizes pesticide application needed and spray drift potential. Another technology system used by agricultural aviators to ensure more targeted and efficient applications of crop protection products is the Aircraft Integrated Meteorological Measurement System (AIMMS). AIMMS provides valuable wind speed, direction, relative humidity and temperature information to the pilot so that he can further precisely target his application. AIMMS is essentially an on-board anemometer. It develops weather-related readings each second (or approximately every 200 feet for a moving ag aircraft); syncs those data with the exact latitudinal and longitudinal location of the ag aircraft; and saves that information into the aircraft's GPS system.

The GPS and AIMMS systems technology comes with a significant financial investment. GPS units used in aerial application, can range from \$8,000 to \$18,000, depending on whether they provide basic guidance or also incorporate a moving map, flow control and a more capable processor. The AIMMS system is even pricier and on average ranges between \$15,000 and \$30,000. Despite their importance to timely and protective pesticide applications for nonagricultural and agricultural purposes, most aerial application companies are very small businesses. According to a pesticide use survey NAAA conducted in 2011, there are on average 2.2 operating aircraft per aerial application company. According to the Small Business Administration, the revenue threshold for a large business under this NAICS code (561710) is \$7 million and 50 employees. This threshold is significantly larger than the average aerial application business, which is about four people (two pilots, a mixer-loader and an administrative staffer). Asking aerial application businesses to now incur significant additional costs to shield their GPS devices from LightSquared's signals is an exorbitant and unfair request, particularly for small businesses that provide such an invaluable service—protecting a safe, affordable and abundant supply of food, fiber and biofuel.

LightSquared claims the commercial GPS industry has received an estimated \$18 billion in implicit subsidies from the U.S. government and is essentially using the GPS satellite network free of charge. Yet, in a report funded by the *Coalition to Save Our GPS*, the numbers point to direct economic benefits of GPS technology on commercial users estimated at more than \$67.6 billion per year, and with more than 3.3 million jobs relying on GPS technology. It also states high precision receivers used in construction, agriculture and survey and mapping account for only 1 percent of GPS users, but over the last five years contributed \$10 billion in private investment in GPS equipment and produced \$30 billion in economic benefits per year. Thus, while use of GPS in agricultural and other high-precision industries account for only a small percentage of the population, they are extremely vital to our economy and highly profitable in financial returns.

LightSquared presumes filters can solve the problem of interference and furthermore the GPS industry should be responsible for shielding their devices from any interference encountered by LightSquared's signals. One massive problem with this fallible deduction is that no suitable filters exist and even if they were available, it would be virtually impossible to block out a signal literally *billions* of times more powerful than satellite GPS signals. If LightSquared's proposed filters did come to fruition though, they would cause millions of devices and billions of dollars of investment in GPS to be deemed worthless. Not to mention that for the entire population of GPS users to prepare for such a change would require a minimum of 10-15 years. Just as with any new innovation, change takes time and considerable financial commitment. While the amount of money and time involved may be trivial to LightSquared, it is nothing short of ruinous for many of the high-precision users who would potentially be affected. To suppose such a transition could take place within a short period of time and with little fallout is completely unrealistic.

NAAA is committed to working with the FCC in reaching a beneficial solution for all. However, we remain very concerned regarding the perceived expectation that small businesses, such as aerial application, should be expected to bear the brunt of costs associated with fixing a problem created by the FCC in the first place. NAAA supports the conclusion drawn by most others in that the most feasible solution to the problem is to relocate the LightSquared service to a spectrum not adjacent to GPS. A solution must be found that will allow for expanded wireless Internet capability for the future, yet in doing so will not pit one industry against another or compromise the millions of Americans who depend on GPS on a daily basis.

Thank you for consideration of our comments.

Sincerely,



Andrew Moore
Executive Director