

Comments from the International Civil Aviation Organization (ICAO)

FCC Public Notice DA 11-1133 specifically invites comment on recommendations submitted by LightSquared to address the problems identified by the technical working group created in response to DA 11-133.

ICAO has reviewed the LightSquared recommendations and has reached the conclusion that implementation of the LightSquared recommendations would fail to address the grave concerns earlier expressed by ICAO, which therefore remain unchanged.

In the words of the ICAO President of the Council and Secretary General¹:

“[T]he potential disruption to aviation use of GPS caused by the LightSquared system would have a far-reaching impact on current and future aviation operations. The impact would not only be limited to the United States. The international aircraft fleet flying into the United States would be directly affected [...]. In September 2007, the United States government reaffirmed its commitment to provide the GPS Standard Positioning Service (SPS) for aviation throughout the world. This commitment, first expressed in 1994, was the foundation for the development of key GPS aircraft navigation applications, based on ICAO international standards and procedures, which today support safer and more efficient aviation operations worldwide. We urge you to ensure that this vital commitment is not unintentionally jeopardized by the introduction of the LightSquared system and the ensuing impact on GPS use by aviation.”

The remainder of this document provides some background on the above conclusion.

¹ Letter from the ICAO President of the Council and Secretary General addressed to the Chairman of the FCC, dated 13 June 2011, File No. SATMOD2010111800239.

Background

In its recommendations, LightSquared reiterates demands for “a full complement of frequencies”. Thus, deployment of the upper 10 MHz channel is intended to occur after an initial phase (“standstill period”) during which only the lower 10 MHz channel would be used.

There are two main sets of problems with this approach for the international civil aviation community. The first one would arise already in the initial phase of operations and may or may not be manageable. The second would arise after the “standstill period” and is clearly insurmountable.

A. Problems with initial operations

The proposed initial phase of operation involves the use of the lower 10 MHz band (1526 – 1536 MHz) with a maximum base station EIRP per sector of 32 dBW.

However, as stated in the TWG report, p.28, “compatibility of aviation GPS operations with a single lower 10 MHz channel could not be determined definitively without additional study”. So far, no such study has been completed and assessed.

Hence compatibility of the proposed initial phase with aviation GPS operations cannot be safely assumed.

B. Problems with subsequent operations

The LightSquared document repeatedly states the need/intent to use “a full complement of frequencies”, i.e. both the lower and upper channels.

The fundamental incompatibility between deployment of the LightSquared upper channel and current internationally standardized aviation GPS equipment has been abundantly demonstrated by all studies conducted so far.

Furthermore, no viable solutions for mitigation have been developed to date. The technology challenges involved are such that the practical feasibility of such solutions is questionable.

Even assuming that a potentially feasible solution could be identified, standardization (including international standardization, which would also be required due to the impact on the international fleet), product development and certification would take several years.

Actual deployment across the existing aircraft fleet could start only after the previous steps are completed, and, as experience has shown, would be a very costly and lengthy process (typically longer than the previous steps).

The overall impact in terms of cost, reduced functionality and delay of planned innovation programmes would be a major one. It would not only affect the US civil

aviation community, but also international aircraft operators flying into the US from different countries.

LightSquared itself would of course be affected by the problems described above. Deployment of LightSquared service in the upper channel would be delayed by at least a decade (a rather optimistic assessment in light of previous experience with fleet retrofit programmes). Much more likely, LightSquared would sooner or later have to recognize that deployment in the upper channel is not feasible and abandon its plan.

In light of the above, it seems clear that the difficulties associated with operation of the LightSquared system in the upper channel are practically insurmountable. A failure to recognize this obvious fact would have far-reaching and potentially crippling consequences for the civil aviation community and for LightSquared itself.