

LightSquared and GPS Overload



LightSquared's Network

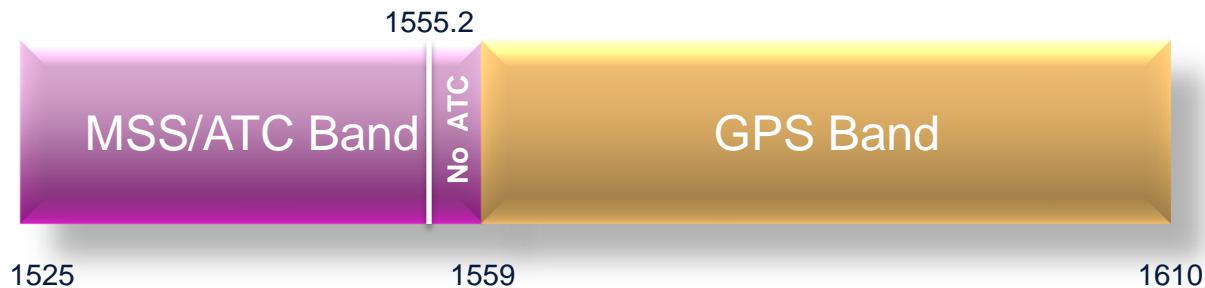
- Investment of \$14 billion over 8 years
- Integrated satellite/terrestrial network
- First wholesale wireless 4G-LTE network
- Builds on LightSquared's 15 years of providing mobile satellite service (MSS) to crucial sectors
 - Largest commercial reflector (23m) allows link with very small form factor devices
 - LightSquared is the only MSS operator to provide push-to-talk and interoperable talkgroups to federal, tribal, state, and local governments
- Culmination of 10 years of work
 - Extensive effort to coordinate use of spectrum, and develop operational limits to operate safely near airports and navigable waterways



Success at developing a mitigation approach means that Americans get a competitive wireless broadband network and continue to have a robust GPS.

What is LightSquared licensed to do and when was it licensed to do it?

- The FCC adopted rules permitting Ancillary Terrestrial Component (ATC) of Mobile Satellite Services (MSS) in 2003
 - Under the original rules, LightSquared could deploy approximately 10,000 base stations
 - 2 year rulemaking process involving USGPSIC, Delta Airlines, and many others; fully reviewed by Interdepartment Radio Advisory Committee (IRAC)
- LightSquared's MSS/ATC license is in the satellite L-band which is adjacent to the GPS allocation
- In 2005, the FCC issued a reconsideration of its rules
 - Removed limit on number of base stations
 - Established power level of 1.6 kw, the power LightSquared is deploying
 - Again, fully reviewed by IRAC

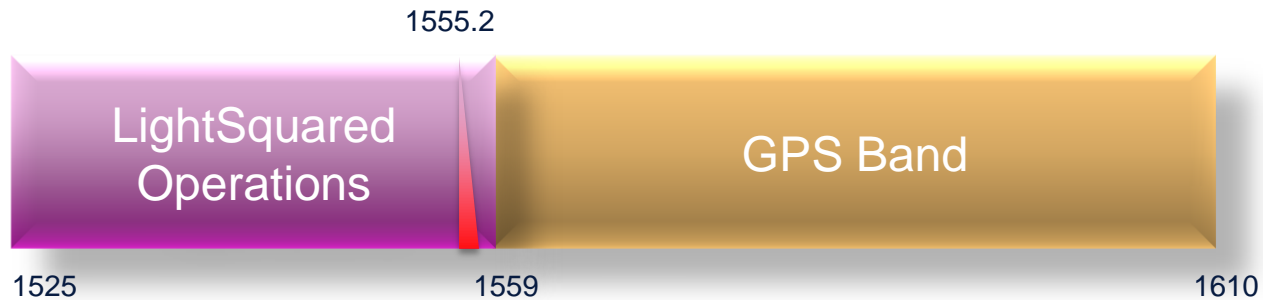
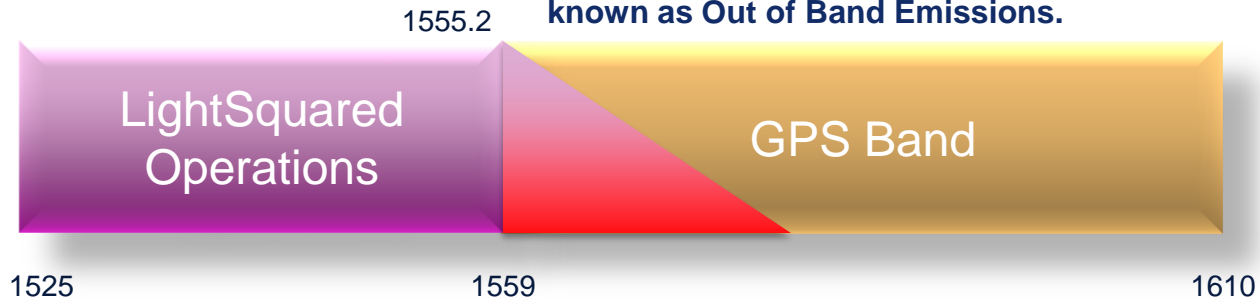


What about other proceedings?

- In April 2009, LightSquared applied for a modification of its authorization that would allow it to increase power to 15 kw (10X)
 - Granted in March 2010, though LightSquared is only using the 2005 authorized power
 - Again, fully reviewed by IRAC
- In September 2010, U.S. GPS Industry Council (USGPSIC) first raised the receiver issue in the FCC's MSS Flexibility proceeding
- In November/December 2010, USGPSIC raised the issue again in LightSquared's integrated service proceeding
 - No explanation of how the proceeding would impact six year old transmission characteristics, which had defined the service
 - LightSquared voluntarily committed to testing to determine the scope of the issue
 - Full Commission ratified this testing in April 2011 MSS Flexibility order

LightSquared's 2002 Commitment to Limit OOB E

The power emitted by an FCC licensee is generally allowed to fall off at a gradual rate into an adjacent band – this is known as Out of Band Emissions.



In 2002, LightSquared reached agreement with the US GPS Industry Council to severely limit LightSquared's Out of Band Emissions into the GPS band (to -100 dBW/MHz).

Images are for illustration and are not drawn to scale

But OOBE Only Addresses One-Half of the Equation



- The characteristics of the receivers operating in the adjacent band are critical. If receivers are not designed with proper front ends and filters that prevent them from looking into an adjacent band, receivers can become overloaded by the higher-power adjacent band signal.
- Blocking services in an adjacent band amounts to reallocation of the band to the neighboring service.

Mitigation

- LightSquared has had 20 years of experience coordinating the use of spectrum and a proven track record of agreements protecting GPS
- LightSquared has not told anyone that, because this is a receiver issue, the only solutions are on the receiver side
- Mitigation is possible along several different dimensions
 - Frequencies LightSquared uses to commence and then expand operations
 - Transmitting power
 - Geographic coordination
 - Time

LightSquared has not taken any options for mitigation off the table.

Process Going Forward

- Technical Working Group report due June 15, 2011
- Jan. 26 Order stated “[t]he process will be complete once the Commission, after consultation with NTIA, concludes that the harmful interference concerns have been resolved and sends a letter to LightSquared stating that the process is complete.”
- FCC recently indicated it will establish a public comment period
- A timely decision on mitigation options allowing us to move forward is important

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