

U.S. Spectrum Policy **Under the Current Administration:** *Perspectives from the Meteorological Community*

Keynote Presentation to RFI 2025
21 October 2025



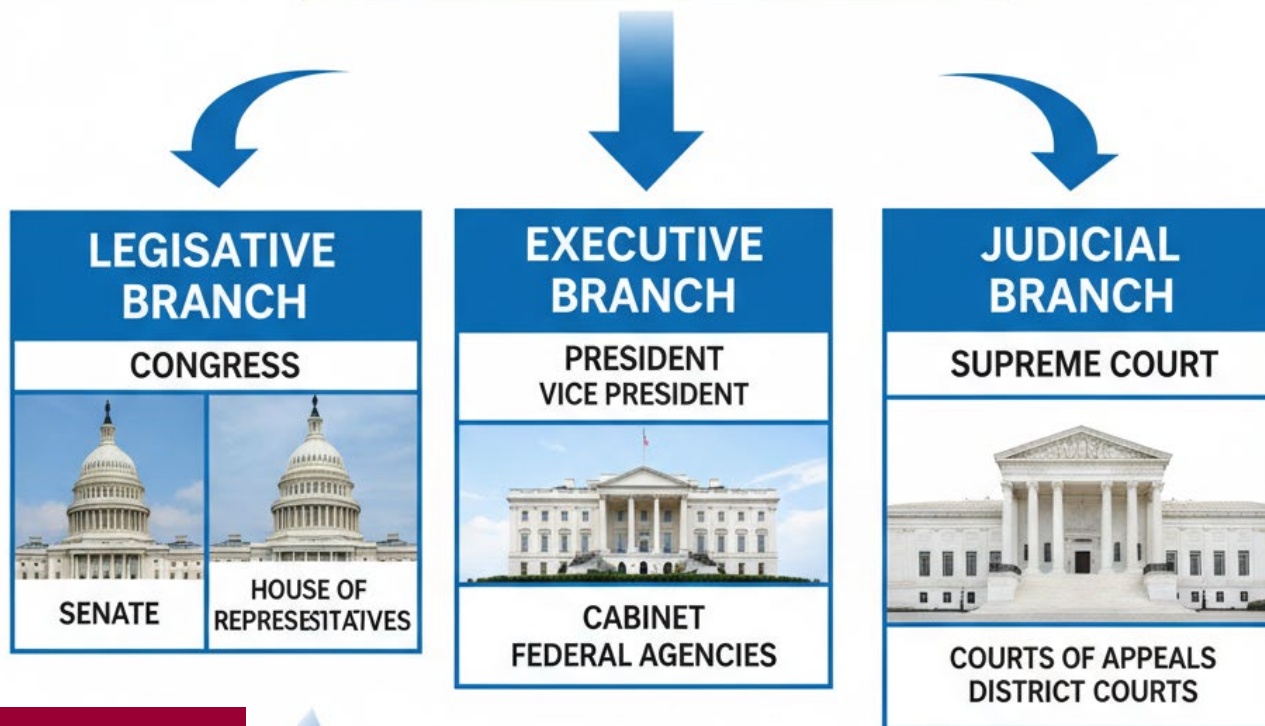
Presented by:

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U.S. GOVERNMENT

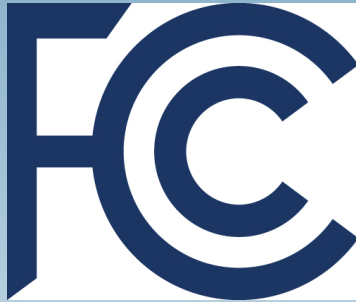


Passes Legislation & Federal Government Budgets Impacting Spectrum Policy and Programs

Regulates Spectrum Allocations and Enforces Spectrum Use

Arbiter of Conflict
(not a focus today)

“Unique” Structure of U.S. Spectrum Regulation



Federal Communications Commission (FCC)

Regulates Public Use of Spectrum

Independent Agency of Federal
Government

Managed by Five Commissioners
(3 Majority Party, 2 Minority) ★

National Telecommunications and Information Administration (NTIA)

Regulates U.S. Government Use of
Spectrum

Federal Agency

Managed under the U.S.
Department of Commerce

Key U.S. Spectrum Leaders



Brendan Carr

Chairman of the Federal Communications Commission (FCC)

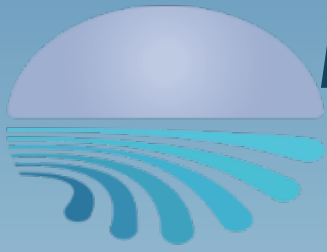
Arielle Roth

Assistant Secretary of Commerce for
Communications and Information
Administrator, National
Telecommunications and Information
Administration (NTIA)

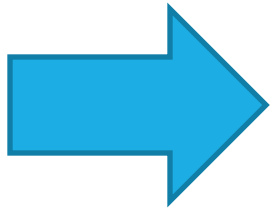


Senator Ted Cruz (R-Texas)

Chairman, Senate Committee on Commerce,
Science and Transportation (*provides oversight
of FCC and NTIA, as well as NASA, NOAA & NSF*)



Major 2025 U.S. Spectrum Policy Developments



Legislation: H.R. 1 – One Big Beautiful Bill Act (OBBBA)

FCC Proceeding: Satellite Spectrum Abundance

H.R. 1 – One Big Beautiful Bill Act

Public Law 119–21
119th Congress

An Act

July 4, 2025

[H.R. 1]

To provide for reconciliation pursuant to title II of H. Con. Res. 14.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

- Considered and Passed by the U.S House of Representatives and U.S. Senate
- Signed into Law by the President on 4 July 2025
- Addresses many policy and funding matters across the U.S. government – consistent with Trump Administration priorities

Out of 331 Pages, 3 are Focused on Spectrum

Major OBBBA Spectrum Elements

- ✓ Reauthorizes the FCC to Conduct Spectrum Auctions through 2034
- ✓ Directs the FCC and NTIA to establish a Spectrum Pipeline of at least 800 MHz to be transitioned to commercial use (500 GHz from Federal government spectrum)
 - Multiple impacts to meteorological and other science-related spectrum

Implications of Spectrum Pipeline Provisions

Radars for Weather and Aviation
Esp. NEXRAD radars across the U.S.

Passive Bands at 7.3 GHz
Used now and in the future on JAXA's
GCOM-W and GOSAT-GW missions

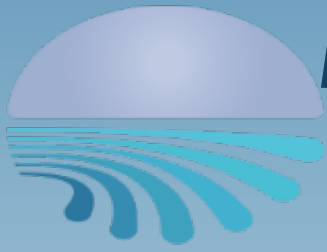
Adjacent to GOES-R series
Rebroadcast E to S Channel
(7.126 GHz)

(1) conduct a timely spectrum analysis of the bands of frequencies—

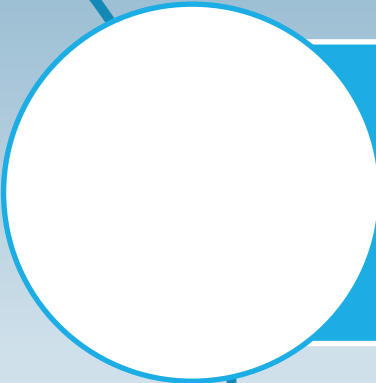
- (A) between 2.7 gigahertz and 2.9 gigahertz;
- (B) between 4.4 gigahertz and 4.9 gigahertz; and
- (C) between 7.25 gigahertz and 7.4 gigahertz; and

OBBBA Implementation: Timeline & Next Steps

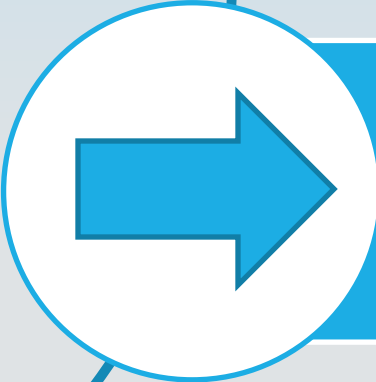
- ✓ Major Deadlines for Analysis and Auctions in 2027 and 2029
- ✓ There are opportunities for users of these spectrum to share their views with the FCC and NTIA. AMS intends to weigh in on these matters.
- ✓ Legislation calls for study to estimate value of all Federal allocated spectrum in 100 MHz bands no later than 2034.



Major 2025 U.S. Spectrum Policy Developments

A white circle with a blue outline, connected by a thin blue line to the circle below it.

Legislation: H.R. 1 – One Big Beautiful Bill Act (OBBBA)

A white circle with a blue outline, containing a solid blue arrow pointing to the right.

FCC Proceeding: Satellite Spectrum Abundance

FCC Proceeding: Satellite Spectrum Abundance (SSA)

Full Title: FCC Kickstarts a Proceeding that Could Unlock More than 20,000 Megahertz of Spectrum for High-Speed Internet Delivered from Space

Document Type: Notice of Proposed Rulemaking

Bureau(s): Space

The FCC sought comment on expanding satellite broadband connectivity across 4 spectrum bands:

☐ 12.7-13.25 GHz,

☐ 42.0-42.5 GHz,

 ☐ 51.4-52.4 GHz,

 ☐ the so-called "W-band" at 92.0-94.0 GHz, 94.1-100 GHz, 102.0-109.5 GHz, & 111.8-114.25 GHz.

SSA Proceeding Process

Released On: May 27, 2025

Adopted Date: May 22, 2025

Issued On: May 27, 2025

Comment Date: Jul 28, 2025

Reply Comment Date: Aug 26, 2025

More than 40 non-Federal government entities filed comments and reply comments, including many from science community, including remote sensing, radio astronomy and meteorological organizations and companies.

Supporters of SSA Proceeding

This proceeding was sought following multiple licensing requests and enquiries to the FCC from satellite broadband providers such as:

- SpaceX (StarLink)
- Amazon (Kuiper)
- Logos Space Systems
- AST SpaceMobile



SSA Impacts: Radio Astronomy

Significant Concerns Expressed by:

- ❑ **American Astronomical Society (AAS)**

- ❑ [Comment](#)

- ❑ [Reply Comment](#)

- ❑ **Committee on Radio Frequencies (CORF)** of the U.S. National Academies of Science, Engineering and Medicine (NASEM)

- ❑ [Comment](#)

- ❑ **National Radio Astronomy Observatory (NRAO)**

- [Comment](#)

SSA Impacts: Meteo & RS

Significant Concerns Expressed by:

- ❑ **American Meteorological Society (AMS), American Geophysical Union (AGU), National Weather Assn (NWA), University Corp for Atmospheric Research (UCAR)**
 - [Comment](#), [Reply Comment](#)
- ❑ **Frequency Allocations in Remote Sensing Technical Committee** of IEEE Geoscience and Remote Sensing Society (IEEE GRSS FARS)
 - [Comment](#), [Reply Comment](#)
- ❑ **NASEM CORF**
 - [Comment](#)
- ❑ **Albin Gasiewski**, University of Colorado
 - [Comment](#)
- ❑ **The Tomorrow Companies**
 - [Reply Comment](#)

Overall Views of Meteo & RS

“These passive observations are not communications signals and are orders of magnitude weaker than typical communications links.

“The properties of the atmosphere are defined by the laws of physics and chemistry and cannot be changed to optimize spectrum allocation.”

“Information used from these bands to inform weather models and improve forecasts provide extensive value beyond the Federal government, including the American public and many weather-dependent industries, such as aviation, stadium event management and maritime shipping.”

SSA Impacts: 50 GHz band



Greatest U.S. Impact Now:

Advanced Technology Microwave Sounder (ATMS)

on U.S. operational Joint Polar Satellite System (JPSS)

- Has multiple channels between 50 and 58 GHz for temperature soundings
- Two JPSS satellites are on orbit now, two more to be launched by 2031 for operation through the 2030s.

Future U.S. Impact:

Sounder for Microwave-Based Applications (SMBA)

for future NOAA Near Earth Orbit Network (NEON) satellites

- NASA and NOAA planning for its procurement

Defining The Threat near 50 GHz

The threat near 50 GHz is both **same-band and adjacent-band interference**

- FCC's SSA seeks to establish allocation for satellite broadband (NGSO) providers at **51.4-52.4 GHz**
 - This is channel 4 on ATMS sensor, which has no allocation for EESS passive (!!)
- This proposed use of 51.4-52.4 GHz for NGSO is also adjacent to:
 - ATMS channel 3, centered at 50.3,
 - ATMS channel 5, centered at 52.8 GHz,
 - Potentially any other ATMS channel between 50-58 GHz that shares front end electronics with channel 4

Impacts on non-U.S. Missions near 50 GHz

- **Microwave Imager (MWI) on Metop-2nd Gen (SG)-B1-3**
 - Launches estimated in 2026, 2033 and 2040
 - Operating at relevant bands to this proceeding centered at 50.3 GHz, 52.7 GHz, 53.2 GHz, 53.75 GHz, 89 GHz and 118.8 GHz.15
- **European Microwave Radiometer (MWR) on European Polar System-Sterna (EPS-STERNA) 1-3**
 - Launch of microsatellite constellation estimated in 2029
 - Operating at 52.6-57.6 GHz

W-Band Rulemaking

SSA Proceeding explores rulemaking for the so-called "W-band" at:

- **92.0-94.0 GHz,**
- **94.1-100 GHz,**
- **102.0-109.5 GHz, &**
- **111.8-114.25 GHz**

(This section of the Proceeding is not as mature and detailed as the 50 GHz section.)

W-Band: Current US Mission Impacts

Impacts on Current Missions:

- **Microwave Imager/Radiometer (MWI) on DoD Weather System Follow-on Microwave (WSF-M)**
 - Launched April 2024
 - Operates near 89 GHz (and other bands)
- **NASA TROPICS mission**, a constellation of four CubeSats to study tropical cyclones
 - Launched May 2023
 - Operates near 90 GHz and 114.5 GHz (and other bands)
- **Tomorrow S1-10 operated by Tomorrow.io**
 - A constellation building on the technologies first deployed on NASA TROPICS.
 - Tomorrow S1-10 operate and/or plan to operate near 92 GHz.

Reflecting on History from 2019

- **U.S. Auction of Spectrum Adjacent to 23.8 GHz**
 - Action by U.S. regulatory leaders to proactively auction areas on the agenda for WRC-19
 - The SSA Proceeding and 50 GHz could be a similar situation in advance of WRC-27
 - Why more dangerous? It is not just an adjacent interference threat, but a shared-band threat

Calibration is Key

- ATMS measurements between 50 and 60 GHz are used to calibrate other microwave sounding instruments on other satellites
 - including S1-S10 operated by Tomorrow.io at 91.6 GHz.

Recommendations & Next Steps

Closing Recommendation from Weather Org
Comment:

“It is critical for comprehensive studies to be conducted that consider the modeling and weather forecasting impacts to any such adjacent or shared band operations, before further regulatory actions are taken to change allocations in these spectral areas.”

- AMS and other orgs intend to continue to engage with FCC, Congress and other stakeholders.

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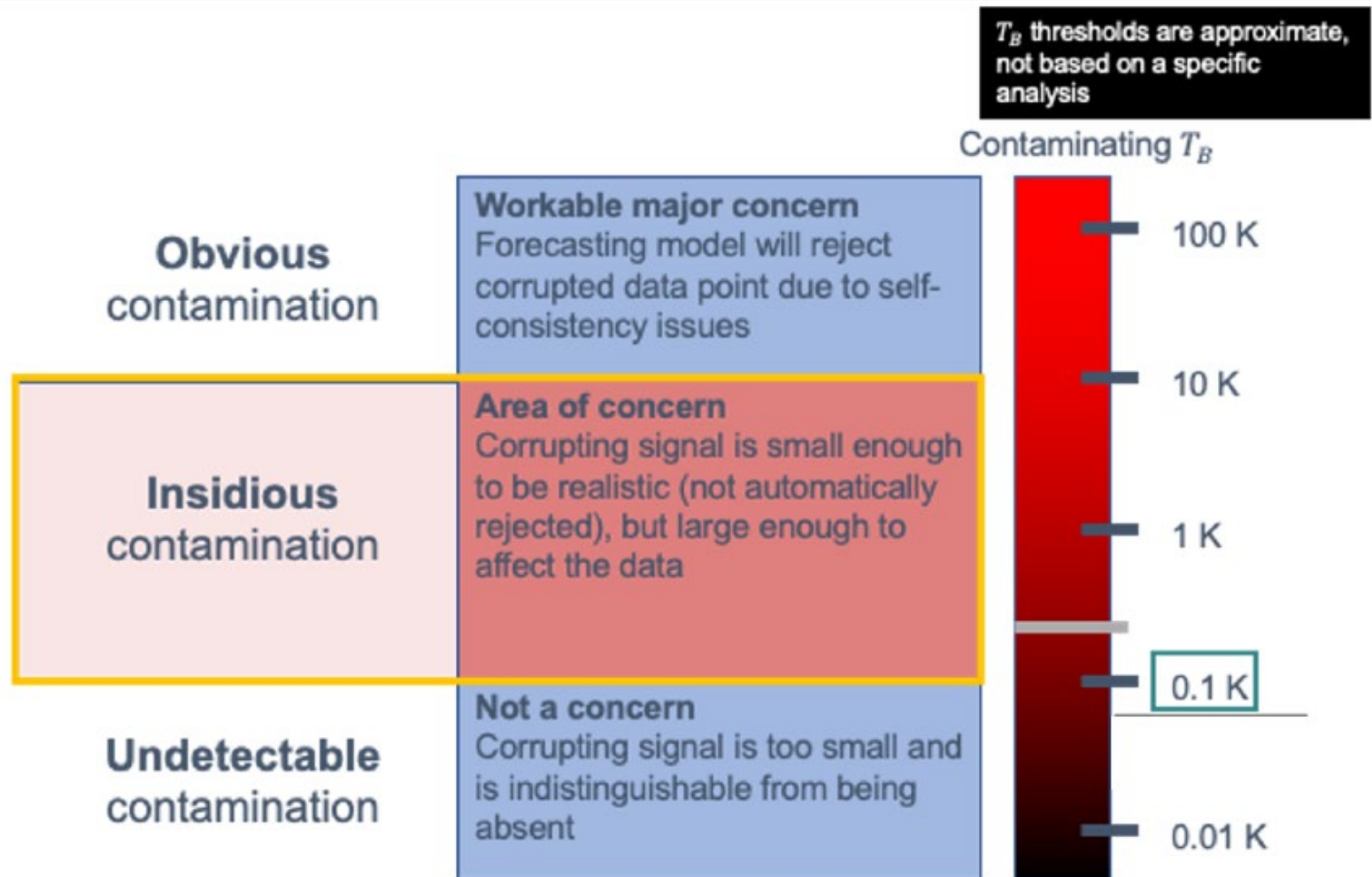


Impacts on Passive Band at 7.3 GHz

- Used to measure **soil moisture and sea surface temperature** in the atmosphere.
- JAXA (Japan) is the major provider of these observations, which are used by other countries.
- There is also a legacy NASA satellite and other JAXA satellites that could be impacted by out of band emissions (OOBE).

Mission	Agency	Launch	End	Sensor	Type	Freq (GHz)
GCOM-W	JAXA	2012-05-17	≥2024	AMSR2	passive	6.925
Aqua	NASA	2002-05-04	≥2026	AMSR-E	passive	6.925
GOSAT-GW	JAXA	≥2024	≥2031	AMSR3	passive	6.925
GCOM-W	JAXA	2012-05-17	≥2024	AMSR2	passive	7.3
GOSAT-GW	JAXA	≥2024	≥2031	AMSR3	passive	7.3

Passive Interference Challenges



Source: Testimony by David Lubar to U.S. House of Representatives; Hearing of the Science, Space & Technology Committee; July 2021