Senate Committee on Commerce, Science, and Transportation's Subcommittee on Telecommunications and Media's Hearing on "U.S. Leadership at the World Radiocommunication Conference 2027: Strategy and Challenges Ahead of Shanghai"

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Introduction

The International Telecommunication Union (ITU) plays a central role in the global governance of radiofrequency spectrum and satellite orbits—resources that follow the laws of physics rather than the jurisdictional boundaries of national governments. Wireless communications, satellite services, aviation systems, weather satellites, and many other technologies depend on international coordination to operate reliably across borders. The ITU's World Radiocommunication Conferences (WRCs) are the principal international forum for negotiating the regulatory framework that governs these uses.

I had the privilege of serving as the United States Ambassador and Head of Delegation to the 2019 World Radiocommunication Conference (WRC-19) in Sharm el-Sheikh, Egypt. In that role, I led the U.S. delegation in negotiations on a broad range of issues affecting the future of wireless communications, satellite services, and scientific systems.[1] My testimony explains why the ITU and WRC matter to the United States, how the United States prepares for these negotiations, how decisions are reached in practice, and what the U.S. government can do now to ensure strong U.S. leadership at WRC-27.

The decisions made at World Radiocommunication Conferences have long-lasting consequences. The Radio Regulations negotiated at these conferences establish the international rules governing spectrum use and satellite operations, often shaping communications markets and technology development for decades.[2] As wireless technologies continue to evolve and satellite constellations expand, the outcomes of these conferences increasingly affect U.S. economic competitiveness, national security interests, and scientific capabilities.

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[1] Today, I work for Ciena, a leading developer and manufacturer of optical networking equipment, critical to fiber deployments, submarine cables, and data center connectivity. Ciena does not participate in the World Radiocommunication Conference preparation or negotiations, nor does Ciena have a significant stake in the outcomes of WRC-27. I am testifying solely in my personal capacity as the former U.S. Ambassador and Head of Delegation to WRC-19, and my remarks are my own.

[2] *Constitution of the International Telecommunication Union* art. 4, Apr. 22, 1992, 1825 U.N.T.S. 331 ("ITU Constitution); *see also* S. Treaty Doc. No. 104-34 (1996) (transmitting the ITU instruments to the Senate); 47 C.F.R. § 2.100 (2024). Nat'l Telecomm. & Info. Admin., U.S. Dep't of Commerce, *Manual of Regulations and Procedures for Federal Radio Frequency Management* ch. 4 (Jan. 2023 rev. ed.), at https://www.ntia.gov/page/manual-regulations-and-procedures-federal-radio-frequency-management.

Preparing for a WRC is therefore a complex national undertaking requiring extensive technical analysis, diplomatic engagement, and coordination across federal agencies and the private sector. The United States has historically maintained a strong and transparent preparation process that allows government and industry experts to work together to develop national positions for international negotiations. One of the central lessons from recent conference cycles, however, is that successful outcomes depend heavily on beginning that work early and resolving key issues well before the conference begins. This requires the Administration to prioritize the work of preparation.

This testimony explains why the ITU and the World Radiocommunication Conference matter to the United States, describes how the United States prepares for a WRC, explains how these conferences operate in practice, and offers recommendations for ensuring that the United States is fully prepared to advance its interests at WRC-27, which is scheduled to be held in Shanghai, China.

The ITU and the World Radiocommunication Conference: Why They Matter to the United States

Because radio signals cross national borders and satellites operate globally, international coordination is necessary to ensure that communications systems can function without harmful interference. Countries retain sovereignty over domestic spectrum decisions, but no country can fully realize the value of spectrum and satellite communications without agreed international rules. The principal forum for this coordination is the International Telecommunication Union.

The ITU provides the international framework through which nations coordinate the use of radiofrequency spectrum and satellite orbital resources.[3] For a country such as the United States, whose economy, national security, and technological leadership depend heavily on reliable access to spectrum, the ITU is an essential institution.

At the center of the ITU's radiocommunication work are the Radio Regulations, the international treaty instrument governing the allocation and use of spectrum globally.[4] These regulations create the framework that allows communications systems to operate predictably across national boundaries. From satellite communications and mobile broadband networks to aviation safety systems and maritime navigation services, internationally coordinated spectrum use is fundamental to the modern global economy.

Participation in the ITU allows the United States to lead in shaping that framework. Through the ITU's study groups, working parties, and World Radiocommunication Conferences, countries negotiate how spectrum will be used internationally and under what technical conditions. These decisions affect the development of new technologies, the availability of spectrum for commercial and governmental services, and the ability of satellite systems to operate globally. As a result, the

[3] *See* note 2 *supra*.
[4] *Radio Regulations*, ITU (2020 ed.), https://www.itu.int/pub/R-REG-RR/en.

ITU's work has a direct impact on the competitiveness of U.S. industries and the effectiveness of U.S. government operations.

Although the ITU provides the framework for international coordination, each nation retains full sovereignty over its spectrum resources.[5] In the United States, spectrum management responsibilities are established by Congress and divided primarily between the Federal Communications Commission (FCC), which manages spectrum used by commercial and non-federal entities, and the National Telecommunications and Information Administration (NTIA), within the Department of Commerce, which manages spectrum used by federal agencies.[6] These institutions implement international commitments through domestic regulatory processes.

That constitutional and statutory structure also explains how the United States participates in the treaty framework of the Radio Regulations. When a World Radiocommunication Conference concludes, member states sign the Final Acts incorporating the revisions adopted during the conference. The United States signs those Final Acts, typically with carefully considered reservations or declarations, to ensure that implementation remains consistent with U.S. law and preserves the statutory authorities of U.S. regulatory agencies. In practice, the United States has long supported the substance of the Radio Regulations while ensuring that its international commitments remain compatible with domestic law.

The ITU matters to the United States for several reasons.

First, it matters for economic growth and innovation.[7] The United States is home to many of the world's leading telecommunications companies, satellite operators, equipment manufacturers, and technology innovators. Harmonized spectrum allocations developed through the ITU allow these companies to build technologies and services for global markets. Satellite operators have always recognized the critical role that ITU regulations play in the deployment of their services. The ITU governs orbital slot allocations and interference protections necessary to the operation of satellite services. More recently, mobile communications service operators have sought to harmonize bands at the ITU for next generation mobile telecommunications services. When bands are aligned internationally, manufacturers benefit from economies of scale, deployment costs fall, and new services can be introduced more quickly.

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[5] ITU Constitution art. 44, ¶ 2, Apr. 22, 1992, 1825 U.N.T.S. 331.

[6] Communications Act of 1934, 47 U.S.C. §§ 151, 301, 305 (2018); National Telecommunications and Information Administration Organization Act, 47 U.S.C. §§ 901–902 (2018); 47 U.S.C. § 305 (2018). Memorandum of Understanding Between the Federal Communications Commission and the National Telecommunications and Information Administration (Aug. 2, 2022), https://docs.fcc.gov/public/attachments/DOC-385867A1.pdf; 47 U.S.C. § 922 (2018).

[7] *See, e.g.*, Meredith Attwell Baker, *#RestoreAuctionAuthority with a Spectrum Pipeline,* CTIA BLOG (Mar. 8, 2024), https://www.ctia.org/news/restoreauctionauthority-with-a-spectrum-pipeline (stating that the U.S. wireless industry supports 4.5 million jobs and contributes $825 billion to the economy each year); *see also* BryceTech, *State of the Satellite Industry Report: 2025 Executive Summary* (Satellite Industry Ass'n, May 13, 2025), https://sia.org/wp-content/uploads/2025/05/SSIR25-2025-SSIR-FY2024-1-Pager-Exec-Summary-1.pdf (indicating that In 2024, the satellite industry accounted for $293 billion — 71% of the $415 billion global space economy).

Second, the ITU matters for national security and government operations. Many U.S. government systems—including military communications, intelligence platforms, weather satellites, aviation systems, and other critical capabilities—depend on spectrum that must be coordinated internationally. Active engagement in the ITU helps ensure that these systems can operate without harmful interference and that international decisions preserve the flexibility federal agencies need to carry out their missions.[8]

Third, the ITU matters for public safety and critical infrastructure. Aviation communications, maritime navigation, weather monitoring, and emergency communications all depend on internationally coordinated spectrum allocations. Aircraft and ships move routinely across borders, and weather and Earth-observation satellites provide global coverage. International coordination through the ITU helps ensure that these safety-of-life and infrastructure-related systems operate reliably.

U.S. engagement with the ITU has remained broadly supportive across recent administrations, even as the geopolitical environment has evolved. During President Trump's first administration, U.S. policy toward multilateral institutions emphasized ensuring that international organizations advanced U.S. interests. Even so, the United States remained actively engaged in ITU radiocommunication work, recognizing that global spectrum coordination is essential to both government operations and the success of American technology companies. During that period, the United States strongly supported Doreen Bogdan-Martin's successful campaign for election as Director of the ITU Telecommunication Development Bureau, making her the first woman elected to a top ITU leadership post.[9]

The Biden administration placed renewed emphasis on coalition-building and international technology governance. That approach was reflected in the successful campaign to elect Doreen Bogdan-Martin as Secretary-General of the ITU in 2022, making her the first woman to lead the organization.[10] The United States worked with a broad coalition of partner countries to support her candidacy, reflecting a shared commitment to a technically grounded and transparent international telecommunications framework.

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[8] *See* ITU Constitution, art. 45; *see also* ITU Constitution, art. 48 (explicitly recognizing the sovereignty of military and national defense systems).

[9] Press Release, Nat'l Telecomm. & Info. Admin., *Statement of Assistant Secretary Redl on Doreen Bogdan-Martin's Election as Director of the ITU's Telecommunication Development Bureau* (Nov. 5, 2018), https://www.ntia.doc.gov/press-release/2018/statement-assistant-secretary-redl-doreen-bogdan-martins-election-director-itu-s.

[10] Press Release, U.S. Dep't of State, Office of the Spokesperson, *U.S. Support for ITU Secretary General Candidacy of Doreen Bogdan-Martin* (Sept. 22, 2021), https://www.state.gov/u-s-support-for-itu-secretary-general-candidacy-of-doreen-bogdan-martin/.

The current Trump administration has continued to support active U.S. engagement and U.S. leadership within the ITU, including support for Bogdan-Martin's bid for re-election.[11] That continuity reflects a bipartisan recognition that the ITU remains important to protecting U.S. technological leadership, supporting open and competitive communications markets, and ensuring that international communications policies remain consistent with U.S. economic and security interests.

The strategic importance of the ITU has grown as communications technologies have become more central to economic growth, national security, and digital infrastructure. Demand for spectrum continues to increase as wireless systems, satellite constellations, and data-intensive applications expand. At the same time, competition within the ITU has intensified. China has increased its engagement in ITU activities, including through technical participation, leadership roles, and efforts to shape international telecommunications standards and spectrum policies. These efforts reflect a broader strategy to influence global technology governance.[12]

For that reason, sustained U.S. leadership in the ITU remains essential. Active participation in study groups, working parties, and World Radiocommunication Conferences allows the United States to shape the technical and regulatory foundations of global communications networks. It also allows the United States to work with allies and partners to promote spectrum policies that support innovation, interoperability, and efficient spectrum use.

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[11] Press Release, U.S. Dep't of State, Office of the Spokesperson, *U.S. Support for the Re-Election of Doreen Bogdan-Martin as ITU Secretary-General* (June 20, 2025), https://www.state.gov/releases/office-of-the-spokesperson/2025/06/u-s-support-for-the-re-election-of-doreen-bogdan-martin-as-itu-secretary-general.

[12] China's campaign to engage on the global stage and lead the innovation agenda shows clearly at the ITU. In 2014, China supported the candidacy of Zhao Houlin for ITU Secretary-General, which came after years of service in ITU leadership. Under Zhao's tenure, the ITU Secretary-General's office consistently lent rhetorical legitimacy to Chinese digital policy priorities. *See, e.g.,* Chen Meng, *ITU Secretary-General: ICT a Foundation for Development Under Belt and Road Initiative*, People's Daily Online (May 23, 2017), http://en.people.cn/n3/2017/0523/c90000-9219335.html *(" '[ICT networks] are essential to future prosperity. The Belt and Road Initiative recognizes this critical role played by ICTs as a foundation for development,' Zhao stressed. He added that ITU and China are working together to implement ICT projects, which will enable growth and innovation across many industries.") (Chinese state media)*. *See also* Council on Foreign Relations, *China's Approach to Global Governance,* https://www.cfr.org/china-global-governance (last visited Mar. 7, 2026); Philip Lott, *How China Became the Standard Maker*, 9DashLine (Oct. 26, 2022), https://www.9dashline.com/article/how-china-became-the-standard-maker; *Most Important UN Agency You Have Never Heard Of*, CSIS (2021), https://www.csis.org/analysis/international-telecommunication-union-most-important-un-agency-you-have-never-heard; Elsa B. Kania & John Costello, *The Fight over the Fate of the Internet*, UC San Diego China Focus (Apr. 21, 2021), https://chinafocus.ucsd.edu/2021/04/21/the-fight-over-the-fate-of-the-internet-the-economic-political-and-security-costs-of-chinas-digital-standards-strategy/; Steve Lang, *The Path to Victory in Shanghai at the World Radiocommunication Conference*, Broadband Breakfast (Oct. 22, 2025), https://broadbandbreakfast.com/steve-lang-the-path-to-victory-in-shanghai-at-the-world-radiocommunication-conference/; Tech. Policy Inst., *International Spectrum Leadership: Key Takeaways* (Mar. 20, 2025), https://techpolicyinstitute.org/publications/broadband/spectrum/international-spectrum-leadership-key-takeaways/.

The ITU's most consequential decisions regarding international spectrum use are made at the World Radiocommunication Conference. At these conferences, member states negotiate updates to the Radio Regulations and determine how spectrum will be allocated or regulated to support existing and emerging services. Those decisions directly affect U.S. commercial, scientific, and governmental interests. For that reason, the WRC is one of the most important international forums shaping the future of communications policy.

Key Issues at WRC-27

At WRC-27, administrations will confront a series of spectrum and satellite regulatory decisions that will shape the next decade of global communications.[13]

- **Spectrum for Future Mobile Networks (6G).** WRC-27 will consider identifying additional spectrum for International Mobile Telecommunications (IMT), the global framework used for 5G and future 6G systems. Decisions on mid-band spectrum—particularly in the 4–8 GHz range—will influence whether the United States and its allies can maintain leadership in next-generation wireless technologies while ensuring continued access for critical government and satellite systems.
- **Regulatory Framework for Large Satellite Constellations.** With thousands of satellites now being deployed in low Earth orbit by U.S. companies such as SpaceX, Amazon, and others, WRC-27 will examine rules governing how non-geostationary satellite systems share spectrum and coordinate with other space services. These decisions could significantly affect the growth of the emerging global satellite broadband industry.
- **Direct-to-Device Satellite Communications.** The conference will consider regulatory frameworks that enable satellites to communicate directly with consumer devices such as smartphones. This technology has the potential to extend connectivity to rural areas and provide critical communications during disasters, but it raises complex spectrum-sharing questions between terrestrial and satellite networks.
- **Protection of Weather and Earth-Observation Satellites.** Certain frequency bands used by passive sensing satellites are essential for weather forecasting, climate monitoring, and national security. The United States has historically played a leading role in protecting these bands at WRC conferences to ensure that commercial spectrum use does not degrade the data used by meteorologists and defense agencies.
- **Spectrum for Aviation, Maritime, and Global Connectivity.** WRC-27 will examine additional spectrum for satellite communications used by aircraft and ships, including systems that provide in-flight connectivity and maritime broadband. These systems are increasingly important for global transportation safety and economic activity.
- **Lunar Communications and the Expansion of Space Activity.** For the first time, the conference will study spectrum allocations that could support communications between spacecraft operating in lunar orbit and on the lunar surface. As both government and

[13] Int'l Telecomm. Union, Resolution 813 (WRC-23), Agenda for the 2027 World Radiocommunication Conference, in *Final Acts of the World Radiocommunication Conference (Dubai, 2023)*.

commercial lunar missions accelerate, these decisions could help shape the regulatory framework for communications beyond Earth orbit.

- **Interference Risks from Mega-Constellations and Spectrum Sharing.** The rapid growth of satellite constellations raises new technical challenges related to interference management, spectrum sharing, and coordination between space systems and terrestrial services. Addressing these challenges will be critical to maintaining reliable communications and protecting scientific systems such as radio astronomy.

As in previous conferences, these discussions will require balancing the economic benefits of expanded mobile broadband capacity against the need to protect other critical services—aviation and maritime safety systems relied upon by U.S. airlines, aircraft manufacturers, and global shipping operators; and passive sensing bands essential to weather forecasting and climate monitoring conducted by NOAA and NASA. These decisions also bear directly not only on U.S. economic and technological leadership but also on U.S. national security and the defense industrial base, affecting military communications, space and intelligence systems, secure aviation and maritime operations, and the ability of U.S. defense and aerospace suppliers to operate and deploy globally under predictable international spectrum rules.

How the United States Prepares for a World Radiocommunication Conference

A defining feature of the U.S. preparation process for World Radiocommunication Conferences is its high degree of transparency and stakeholder participation. Unlike systems in which spectrum policy is developed largely within a government ministry, the U.S. approach incorporates extensive participation from federal agencies, private-sector stakeholders, technical experts, and research institutions. Much of the preparatory work occurs in open forums where participants contribute technical studies, regulatory proposals, and operational perspectives. For example, meetings of the FCC's WRC Advisory Committee are generally open, and many of the documents developed through the process are publicly available. This openness allows the United States to draw on the technical depth of its communications industry, research institutions, and engineering community, producing sophisticated technical contributions that often strengthen the credibility of U.S. proposals abroad.

That openness also makes the process more complex. Stakeholders often have sharply different priorities. Wireless carriers may seek additional spectrum for advanced mobile systems, satellite operators may seek globally harmonized allocations for broadband constellations, and federal agencies may require continued protection for military systems, aviation services, weather satellites, or scientific sensors. The scientific community may emphasize the importance of protecting passive sensing bands from harmful interference. Reconciling those competing interests into coherent U.S. positions is one of the central challenges of preparing for a WRC.

WRC Preparation Timeline

Preparation for a WRC begins soon after the conclusion of the previous conference and unfolds over several years. The agenda for each WRC is set by the preceding WRC. Once the agenda for the

next conference has been adopted, the ITU Radiocommunication Sector begins conducting technical studies on the new agenda items. During this period, U.S. experts from both government and industry participate in ITU study groups and working parties to help develop the methods and analyses that will later inform regulatory decisions.

Roughly three years before the conference, the domestic preparation process becomes more formalized. The FCC establishes the WRC Advisory Committee (WAC), which organizes stakeholders into working groups around the conference agenda items. In parallel, federal agencies intensify their internal and interagency analysis through NTIA-led processes. During this stage, stakeholders conduct detailed studies of compatibility, interference, sharing feasibility, and operational requirements. These technical analyses frequently form the basis of preliminary U.S. views and proposals.

The preparatory process culminates in the Conference Preparatory Meeting (CPM), held at the ITU several months before the WRC. The CPM compiles the technical and regulatory options developed during the study cycle and effectively sets the parameters for negotiation at the Conference itself. Success at the CPM is shaped not only by domestic preparation, but by sustained engagement in regional organizations and bilateral discussions well in advance of that meeting. The three meetings held by Inter-American Telecommunication Commission (CITEL) to plan regional strategies for the WRC are critical milestones in the preparatory process, as they can determine whether U.S. proposals enter the CPM and the WRC with regional backing.

Two to three years before the conference, the United States also begins to focus more intensively on international coordination. U.S. officials participate in regional preparatory meetings and bilateral consultations with other administrations to build support for U.S. positions, understand where other countries are heading, and identify where compromise may be possible.

During the final year before the conference, U.S. negotiating positions are refined, the delegation is assembled, and the Administration names a Head of the U.S. Delegation. The Head of the U.S. Delegation is granted the status of a U.S. Ambassador for six months during this period and is accorded full powers to conduct negotiations at the WRC and sign the treaty on behalf of the United States. Diplomatic engagement intensifies as administrations seek to narrow disputes before formal negotiations begin. Input on U.S. proposals and positions are closed to input from the general public and is limited to the members of the U.S. delegation.

Coordination of Federal Government Viewpoints

Within the federal government, preparation for a WRC is coordinated through NTIA, which manages spectrum policy for federal agencies and chairs the Interdepartment Radio Advisory Committee (IRAC). The IRAC is a long-standing interagency body composed of representatives from departments and agencies that rely on radio systems to carry out their missions. The IRAC advises

NTIA in assigning frequencies to U.S. government operations and developing policies, technical criteria, and procedures for spectrum allocation.[14]

The IRAC's Radiocommunication Conference Subcommittee (RCS) serves as the principal federal forum for examining the implications of specific WRC agenda items. Agencies submit detailed engineering studies and operational assessments addressing how proposed regulatory changes could affect federal systems. These analyses commonly evaluate spectrum sharing, interference risks, and protection criteria for sensitive operations, including military systems, aviation services, Earth-observation satellites, and passive sensing bands used for weather forecasting and scientific research.

Because federal agencies operate a wide range of systems with very different missions, the discussions within the RCS can be highly complex and, at times, contentious. The Department of Defense may depend on a band for mission-critical operations while commercial stakeholders seek greater access to that same spectrum for terrestrial or satellite services. Agencies such as NOAA and NASA may require strong protections for passive bands even as pressure grows to expand active services nearby. These are not merely bureaucratic disagreements; they reflect legitimate mission needs and the practical difficulty of accommodating them in a finite spectrum environment.

In parallel with the federal interagency process, the FCC gathers private-sector input through the WAC.[15] The WAC is a federal advisory committee composed of representatives from wireless carriers, satellite operators, equipment manufacturers, technology companies, engineering organizations, and trade associations. It conducts much of its work through working groups organized around specific agenda items. Those groups develop technical analyses and draft proposed positions on matters such as mobile broadband allocations, satellite regulatory frameworks, access for emerging technologies, and protection of scientific and safety-of-life services. The private sector process can be as contentious as the intra-governmental process, as the uses of spectrum have proliferated over time and more businesses view access to spectrum as vital to their operations.

Technical studies are essential to World Radiocommunication Conference preparation, but they are not, by themselves, the basis for decisionmaking. Engineering analyses help define what is technically feasible and where interference risks or sharing constraints arise, but the resolution of U.S. positions ultimately reflects public policy priorities established by Congress, the Administration, national security authorities, and many other stakeholders. Those priorities—economic growth, national security, public safety, scientific integrity, and global competitiveness—guide how technical options are weighed and which tradeoffs are acceptable. The task of WRC preparation is therefore not to identify a single "correct" technical outcome, but to use technical

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[14] *See* U.S. Gov't Accountability Off., GAO-04-1028, *Interdepartment Radio Advisory Committee: IRAC Representatives Effectively Coordinate Federal Spectrum* (2004); 47 U.S.C. § 305.

[15] *See* Federal Advisory Committee, World Radiocommunication Conference Advisory Committee, 90 Fed. Reg. 59,825 (Dec. 22, 2025).

evidence to determine how best to advance the nation's stated objectives while making the most efficient use of an increasingly scarce and contested resource.

One of the defining strengths of the U.S. process is the diversity of interests engaged in the formation of U.S. positions and proposals. The WAC develops proposals and analyses reflecting commercial and technical perspectives. The IRAC and RCS evaluate how those proposals may affect federal systems and missions. Through coordination among NTIA, the FCC, and the Department of State, these views are ultimately reconciled and integrated into U.S. preliminary views, formal proposals, and negotiating positions.

That process can be difficult, but it also produces an important benefit: by the time the United States reaches a final position, many of the most serious objections have already been surfaced and worked through domestically. A U.S. position that has survived that process is often stronger internationally because it has already been tested against a wide range of technical and operational concerns.

Department of State plays a critical role in bringing these domestic negotiations to as close to resolution as possible during the last year to year and half of preparation. Further, the WRC is ultimately an international treaty conference, which is the remit of the State Department.[16] In addition to coordinating the final position of the United States during the final year of preparation, the Department of State prepares the delegation for negotiations, determines the strategy and fallback positions, and designates spokespersons who can effectively convey U.S. positions to persuasive effect.

Domestic preparation, however, is only one part of the process. Because decisions at a WRC are negotiated among nearly 200 administrations, successful outcomes depend heavily on international coalition building before the conference begins. U.S. officials participate actively in regional preparatory processes, especially through CITEL, where countries of the Americas develop common approaches for upcoming conferences. The Department of State also conducts bilateral consultations with administrations in other regions to exchange views, advance U.S. priorities, and identify areas where compromise may be possible. Those efforts are often decisive in shaping the conference environment before the first day of the WRC.

How a World Radiocommunication Conference Operates in Practice

A World Radiocommunication Conference is one of the most complex and technically demanding treaty negotiations conducted under the auspices of the ITU. Nearly 200 national administrations participate, along with representatives from international organizations, technical bodies, and

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[16] *See* 22 U.S.C. § 2651a(a) (vesting authority in the Secretary of State to carry out the foreign relations of the United States); Delegation of Authority No. 480, 86 Fed. Reg. 70,885 (Dec. 13, 2021) (delegating authority to designate United States representatives to international conferences and meetings convened by international organizations); see also Federal Communications Commission, *World Radiocommunication Conference (WRC)*, https://www.fcc.gov/wrc (noting that the Executive Branch, led by the Department of State, heads the U.S. delegation to WRC).

industry stakeholders. The conference typically lasts four weeks, and the result is a set of revisions to the Radio Regulations that have been debated for the previous four years.

At the beginning of the conference, participating administrations elect the conference leadership. The chairman is traditionally nominated by the host country and formally elected in the opening plenary.[17] The chairman plays a central role in guiding the work of the conference, maintaining momentum, and helping administrations find paths toward compromise.

Supporting the chairman is the Steering Committee, which helps coordinate the work of the various committees and manage the overall conduct of the conference. The vice chairs of the conference who make up the Steering Committee typically come from the leadership of the major regional telecommunications organizations: CITEL, Asia-Pacific Telecommunity (APT), the European Conference of Postal and Telecommunications Administrations (CEPT), the African Telecommunications Union (ATU), the Arab Spectrum Management Group (ASMG), and the Regional Commonwealth in the Field of Communications (RCC, representing central Asian countries). The Vice Chairs matter because they influence how negotiations are organized, how disputes are escalated, and how compromises are developed.

The substantive work of the conference is carried out through a system of committees, working groups, and ad hoc drafting groups. The Plenary, which includes all participating administrations, elects leadership, receives committee reports, and ultimately adopts the final revisions to the Radio Regulations. Other committees address credentials, budget and administration, detailed technical and regulatory negotiations, and editorial matters.

The substantive negotiations occur in committees and working groups addressing specific agenda items. Those groups review the technical studies developed during the preparatory cycle, debate competing regulatory proposals, and attempt to reconcile the needs of different services. The negotiations are often highly technical, and national delegations typically rely on engineers and subject-matter experts to lead them.

Each administration sends a national delegation composed of government officials, engineers, policy experts, and technical advisors. The United States delegation to WRC-19, for example, included representatives from the FCC, NTIA, the Department of State, the Department of Defense, NASA, NOAA, the Federal Aviation Administration, the National Science Foundation, and other agencies, along with private-sector advisors who provided specialized technical expertise. In the working sessions, government delegates serve as the official spokespersons for the United States; their responsibilities are to monitor the progress of the agenda items, ensure that the U.S. interests are considered appropriately, and coordinate with the U.S. delegation and regional organizations. Private-sector participants provide advice, technical support, and operational insight. The size of the U.S. delegation reflects the importance of many of the WRC agenda items to U.S. national security and economic interests as well as the U.S. capacity to address many of these intensely

[17] The election at the conference is a formality. The Chair of the WRC is typically well vetted and socialized with the conference members by the time the conference begins.

technical questions. Insufficient representation on a key agenda item risks undermining U.S. leadership in negotiations.[18]

Although negotiations formally occur among individual administrations, much of the real diplomatic activity at a WRC occurs through regional coordination groups. Regional organizations arrive with pre-conference proposals or common positions and continue coordinating strategy throughout the meeting. Because these groups may represent dozens of administrations, their collective views can significantly influence the direction and outcome of negotiations. For that reason, coalition building among regions—and not simply among individual countries—is essential to success.

Consistent with long-standing ITU practice, WRCs do not typically resolve issues through formal votes.[19] Outcomes are reached by consensus, and a vote is usually treated as an indication that the preparatory and diplomatic process has broken down. The deepest incentive for compromise is that the alternative — no agreement — distributes costs widely while concentrating them unpredictably. At the WRC, the physical reality of interference, the treaty status of outcomes, the infrequency of conferences, and the complexity of cross-agenda linkage combine to make consensus the dominant strategy for most participants most of the time, even when the substantive terms fall short of any party's ideal. As a result, administrations devote significant effort to compromise and coalition-building, because durable international spectrum rules depend on broadly supported outcomes rather than narrow majorities.

Striving for consensus means that the pace of a WRC can be extremely demanding. People, companies, and governments must make hard choices to walk away from the negotiating table with what they need if not what they wanted. Working groups meet throughout the day and often into the evening. During the final week, negotiations frequently continue late into the night as administrations attempt to close remaining gaps. Informal consultations organized by committee chairs or working group leaders can become especially important during this stage. These smaller drafting groups often allow for more candid exchanges and more rapid movement toward compromise than formal sessions permit.

Leadership quality can strongly affect outcomes. Effective chairs help structure discussions, manage procedure fairly, identify the real points of disagreement, and develop pathways to compromise. Weak leadership can delay discussions, create confusion, or force unresolved issues upward too late in the conference. In some instances, poor management of a working group can lead to last-minute scrambles that could have been avoided with more disciplined chairing. As

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[18] At WRC-19, the U.S. delegation included 167 participants drawn from multiple federal agencies and from the private sector, reflecting the wide range of spectrum users and technologies affected by the conference. WRC-19 may have been the first WRC, where the Chinese delegation (183) outnumbered the U.S. delegation.

[19] See *World Radiocommunication Conferences (WRC)*, Int'l Telecomm. Union, https://www.itu.int/en/ITU-R/conferences/wrc/Pages/default.aspx (last visited Mar. 12, 2026) (describing World Radiocommunication Conferences as treaty-level negotiations conducted under ITU constitutional procedures, with outcomes reflected in negotiated revisions to the Radio Regulations).

such, active involvement from the United States in selecting the leadership for the conference committees contributes to success.

As unresolved issues accumulate, they are gradually elevated through the conference structure. Matters that cannot be resolved in a working group may be taken up by committee leadership, and especially difficult questions may eventually require attention from the conference chairman and the Steering Committee. This escalation process contributes to the accelerating tempo of the final days of the conference.

An important but often overlooked part of the conference structure is the Editorial Committee, which is responsible for finalizing the treaty text that will amend the Radio Regulations. Because the Radio Regulations are issued in the six official languages of the United Nations, the Editorial Committee must ensure that the language adopted by the conference is reflected accurately and consistently across all official versions. That responsibility requires not only linguistic precision but also a deep understanding of the underlying technical and regulatory concepts. Members of the Editorial Committee must therefore possess a high degree of technical competence and professional integrity. Their role is not to reopen compromises, but to ensure that the conference's negotiated outcome is faithfully captured. The United States regularly offers a delegate for the Editorial Committee.

The resolution of the WRC agenda alone is enough to generate substantial friction as the conference moves toward resolution of these questions. To complicate matters further, geopolitical issues can occasionally surface on the margins as well. At WRC-19, for example, a number of administrations circulated a declaration supporting greater participation of women in telecommunications and spectrum policy. Many delegations supported the objective, but the initiative also prompted discussion about whether broader policy declarations should be associated with a conference whose formal mandate is technical in nature. The declaration ultimately remained a voluntary statement rather than becoming part of the treaty outcome.[20]

Questions related to Palestinian participation and status have also surfaced periodically at WRCs and ITU Plenipotentiary meetings. These issues can create serious legal and diplomatic difficulties for some administrations, including the United States, if handled incautiously. In practice, such disputes are often managed through quiet diplomacy involving the United States, the host country, and moderate Arab administrations that have a strong interest in preventing political disputes from derailing the conference's technical work. The result is typically a compromise that acknowledges Palestinian concerns while allowing the conference to proceed without jeopardizing the participation of key administrations.[21] However, preparation for this particular issue often requires the State Department to engage with the Palestinian and Israeli governments during the periods between ITU conferences to mitigate disruption at the conference.

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[20] *See* World Radiocommunication Conference 2019 (WRC-19), Declaration on Promoting Gender Equality, Equity and Parity in the ITU Radiocommunication Sector, in *Final Acts of the World Radiocommunication Conference (Sharm el-Sheikh, 2019)* (Int'l Telecomm. Union 2020).

[21] *See, e.g.,* Res. 12 (Rev. WRC-19), Assistance and Support to Palestine, in *Final Acts of the World Radiocommunication Conference (Sharm el-Sheikh, 2019)* (Int'l Telecomm. Union 2020).

Challenges and Recommendations for WRC-27 in Shanghai

The challenges of preparing for WRC-27 will be even more difficult, simply due to the mounting pace of technological change and the scale of the negotiations. As a result, the most important overarching lesson from recent conference cycles is the need to start earlier, align U.S. positions sooner, and resolve the most difficult issues well before the conference convenes. Earlier alignment strengthens the ability of U.S. negotiators to build international support, shape regional outcomes, and manage the increasingly complex diplomatic environment surrounding international telecommunications policy.

One challenge arises from the diversity of U.S. spectrum stakeholders; the resolution of these interests can be difficult and protracted. Reconciling these interests into unified U.S. positions requires sustained coordination among experienced officials at NTIA, the FCC, the Department of State, and numerous other agencies and stakeholders. Just as importantly, the debate between NTIA, FCC, and the Department of State must occur on equal footing to ensure that private sector and governmental equities are evaluated legitimately. The FCC's loss of auction authority during the WRC-23 cycle also weakened an important component of its domestic spectrum policy toolkit, at a time when private-sector interests were pressing for clear U.S. leadership on spectrum issues.[22] Fortunately, this has been remedied.[23] During preparation for WRC-19, NTIA operated for a period under an Acting Administrator, which may have limited its ability to fully leverage the Department of Commerce's institutional weight in negotiations. These key agencies should have full authority during these negotiations to ensure full, timely resolution of U.S. positions.

These disagreements are not unusual. Experienced negotiators sometimes hold high-value issues until late in the process to preserve bargaining leverage. But the risks of delay have become more serious in this geopolitical environment. When U.S. proposals are finalized late in the study cycle, the United States has fewer opportunities to socialize those positions internationally, build support within regional organizations, and shape the negotiating environment before key meetings occur. For WRC-27, that problem is compounded by the operating environment in Shanghai, where the United States should assume that some issues will be harder to resolve safely and candidly once the conference is underway. The United States should therefore seek to finalize most major proposals well before the Conference Preparatory Meeting and the final regional preparatory meetings. Earlier resolution will improve coalition building and reduce the risk of hasty decisions in Shanghai with unintended consequences.

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[22] *See* Patricia Moloney Figliola & Jill C. Gallagher, *The Federal Communications Commission's Spectrum Auction Authority: History and Options for Reinstatement*, Cong. Research Serv., No. R47578 (Sept. 12, 2023) (noting expiration of FCC auction authority on Mar. 9, 2023); *see also* "Wireless Telecommunications Bureau Seeks Comment on Ways to Facilitate Access to Spectrum in Light of Ongoing Lapse of Auction Authority," 39 FCC Rcd 2143 (2024).

[23] *See* One Big Beautiful Bill Act, Pub. L. No. 119-21, § 43101, 139 Stat. 72 (2025) (amending 47 U.S.C. § 309(j)).

A second challenge concerns the availability of experienced negotiators and technical experts. As noted earlier, spokespersons are critical to the success of the U.S. argument in shaping the outcome of a WRC resolution. Recent conferences have shown that it can be difficult to field enough seasoned spokespersons when multiple negotiations are occurring simultaneously. The skills needed to conduct technical studies are not identical to the skills needed to negotiate effectively in a multilateral treaty setting. Federal agencies should therefore identify and develop future spokespersons earlier in the cycle and provide training on conference procedure, negotiation strategy, and delegation coordination.

A third challenge is the logistics of managing a large U.S. delegation in an environment where surveillance must be assumed. A WRC delegation typically includes several hundred participants representing federal agencies, private-sector advisors, and technical experts. That breadth is one of the strengths of the U.S. system, but it also creates management challenges. Leadership must ensure that information flows efficiently, that negotiators across committees understand broader delegation strategy, and that sensitive issues are elevated promptly. These challenges will be even greater in Shanghai, where operational discipline among both government and private-sector delegates will be especially important. Delegation leadership should strengthen structured reporting mechanisms, hold focused issue meetings, and ensure that decision-making channels are clear well before the conference begins. Security training for the delegation should begin quickly after the delegation is formed.

Administrative and logistical preparation also deserves more attention than it sometimes receives. Accreditation, travel coordination, security planning, document handling, and conference logistics must be managed early and carefully. Delays in delegation formation or accreditation can impede training, complicate security preparations, and reduce opportunities to build internal delegation cohesion before the conference. Administrative planning should therefore begin early in the cycle, with clear timelines and accountability for accreditation, travel, communications support, and other logistics.

International coalition building will remain indispensable. Because WRC decisions are negotiated among nearly 200 administrations, technical merit alone is not sufficient for success. Regional organizations play a central role in shaping the conference environment, and for the United States, CITEL remains a particularly important platform for developing support in the Americas. At WRC-19, engagement with key partners such as Canada, Brazil, and Mexico was instrumental in advancing U.S. priorities. Looking toward WRC-27, early and sustained engagement will also be important in Africa, among Arab administrations, and within Asia-Pacific processes. The United States should intensify diplomatic outreach early in the study cycle and use both bilateral and regional channels to build support well before the conference opens.

Although WRCs are primarily technical conferences, the broader geopolitical environment can affect them. Political disputes unrelated to spectrum policy can consume diplomatic attention and complicate negotiations. The Department of State should therefore begin early integration into the preparation process, not only to manage diplomatic outreach but also to anticipate and contain political issues before they disrupt progress on the technical agenda.

As discussed above, the decision to hold WRC-27 in Shanghai introduces an additional set of operational and security challenges that require early attention. The bottom line is that State Department must begin logistical preparation early in the year, perhaps even before the delegation is formed. To do so, State Department will require strong political support to ensure that it has the resources and clarity of mandate to act.

First, the United States should work with the ITU Secretariat and other relevant actors to ensure that the conference is conducted in a fair, transparent, and open manner consistent with long-standing ITU practice. The host country plays an important role in conference logistics, communications infrastructure, and administrative arrangements. Early engagement will be important to ensure that delegations have reliable access to facilities, documents, and communications, and that conference procedures are administered evenhandedly.

Beyond these institutional considerations, the operating environment in Shanghai presents practical risks for the U.S. delegation. Internet access may be inconsistent or restricted, and commonly used collaboration platforms—such as Slack, Google Workspace, and certain Microsoft applications—may be unavailable or unreliable. Because WRC negotiations require constant communication with experts in Washington and elsewhere, reliable connectivity is essential. The State Department should work with conference organizers and the U.S. post in Shanghai to ensure that delegates have the tools and support necessary to maintain effective communications.

Delegation members should also assume that electronic communications and personal devices will be monitored. WRC delegations rely heavily on laptops, mobile devices, and shared technical documents to coordinate strategy and consult with outside experts. Protecting sensitive communications and information will therefore require careful planning and disciplined execution. The U.S. Consulate in Shanghai will be an important resource in this regard. Coordination with the Consulate can help ensure that delegation leadership has access to secure communications when necessary and appropriate locations for sensitive discussions away from the conference venue.

Other risks should also be anticipated. State-affiliated media may seek to frame conference developments in ways that support the host government's broader messaging. Delegation members should therefore exercise caution in public statements and media interactions. Protocol issues may arise during official events and bilateral meetings hosted by the organizing government, requiring clear guidance to ensure that participation remains consistent with U.S. diplomatic practice.

The location of the conference also raises export control and compliance concerns. U.S. export controls explicitly treat China as a heightened-risk destination for advanced and dual-use technologies, particularly in telecommunications, AI, semiconductors, and space systems. The Bureau of Industry and Security (BIS) and the International Trade Administration (ITA) both emphasize that China's military-civil fusion strategy complicates end-use and end-user risk

assessments, creating elevated compliance risk for U.S. persons and companies.[24] Many U.S. delegates will represent companies or organizations involved in advanced communications technologies. Technical discussions at the conference may touch on sensitive matters, and delegation members must remain mindful of export control obligations. Pre-conference guidance should therefore address not only cybersecurity and travel security, but also device management, information handling, export compliance, and official protocol.

These risks reinforce the importance of forming the U.S. delegation early and beginning training well in advance of the conference. Delegates should receive briefings on cyber hygiene, travel security, communications discipline, export compliance, and host-country operating risks. This is especially important for agenda items involving national security concerns, where resolving U.S. positions earlier in the cycle will reduce the need for sensitive deliberations once the delegation is on the ground in Shanghai.

Finally, delegation leadership must establish and enforce clear expectations regarding discipline and operational security. The effectiveness of the U.S. delegation depends on its members acting in a coordinated and responsible manner. Delegates should understand that adherence to security guidance and delegation protocol is not optional. Leadership should be prepared to enforce those expectations, including sending individuals home if their actions place the security of the delegation or the effectiveness of the U.S. negotiating position at risk.

Conclusion

The World Radiocommunication Conference is one of the most consequential international forums shaping the future of wireless communications, satellite services, and scientific systems. The decisions made at these conferences influence global spectrum policy for decades and directly affect U.S. technological leadership, national security capabilities, and scientific interests.

The United States enters the WRC-27 cycle with important advantages: a transparent and inclusive preparation process, world-class technical expertise, and a tradition of close collaboration between government and industry. To capitalize on those strengths, however, the United States must act to:

- Resolve major U.S. positions earlier in the preparation cycle.
- Authorize and fund early logistical and security preparation for the Shanghai conference.
- Identify and train U.S. spokespersons earlier.
- Intensify coalition-building before the CPM and final regional meetings.
- Maintain strong delegation discipline and operational security.

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[24] *See* Int'l Trade Admin., U.S. Dep't of Com., *China – U.S. Export Controls*, https://www.trade.gov/country-commercial-guides/china-us-export-controls (last published Sept. 25, 2025). Importantly, export control risk is not limited to physical shipments. The Export Administration Regulations (EAR) cover exports, re exports, transfers, and releases of controlled technology, including intangible transfers such as technical discussions or access to controlled data while abroad. *See also* 15 C.F.R. § 734.13(a)(2), (b) (2025).

Congress can play a key role in empowering the State Department to prepare early for logistical challenges and supporting the Department's authority to ensure discipline within the delegation.

If the United States does so, it will be well positioned to continue leading in the development of global spectrum policy and to ensure that the international regulatory framework supports innovation, economic growth, scientific progress, and critical government missions.