

1. What are projected future spectrum requirements of the services or missions of concern to you in the short (less than 3 years), medium (3–6 years) and long (7–10 years) term? What are the spectrum requirements for next generation networks and emerging technologies and standards under development (e.g., 5G Advanced, 6G, Wi-Fi 8)? Are there additional or different requirements you can identify as needed to support future government capabilities? What are the use cases and anticipated high-level technical specifications (e.g., power, target data rates) that drive these requirements? How much, if at all, should our strategy be informed by work being performed within recognized standards-setting bodies (e.g., 3GPP, IEEE), international agencies (e.g., ITU), and non-U.S. regulators or policymakers (e.g., the European Union)? What relationship (if any) should our strategy have to the work of these entities? Are there spectrum bands supporting legacy technology (e.g., 3G, GSM, CDMA, etc.) that can be repurposed to support newer technologies for federal or non-federal use?

Answer:

NTIA, in collaboration with the FCC, should enable the licensing of spectrum for individual sites, so that ISPs can provide connectivity at greater distances from their points of presence and so that consumers can use their mobile devices to access broadband connectivity provided by ISPs, rather than mobile network operators (MNOs).

ISPs should be able to buy off-the-shelf GSM hardware (from US companies like [Ukama](#)) to offer their customers GSM connectivity at the edge. These companies should only be charged an affordable license fee based upon the area covered or the signal strength of the GSM radio they are using. Even when Wi-Fi 8 extends the range of Wi-Fi another hundred feet or so, it will never reach the range of a GSM signal.

NTIA should allow and even encourage the use of GSM equipment at the edge by non-MNOs, because it will give consumers the opportunity to connect to broadband internet at farther distances from POPs. Furthermore, this will enable profitable use of edge storage and edge computing systems, reducing the cost and reliance on backhaul.

By allowing use of GSM hardware at the edge (though a transparent local spectrum management system), thousands of people can get connected immediately. If we wait for MNOs to provide broadband data speeds to unconnected locations/people, we will be waiting for Godot.

To facilitate the use of GSM radios at the edge, NTIA (working with the FCC) should maintain a highly accurate and up-to-date spectrum usage map online. This map should include a functionality that allowed individuals to enter geo coordinates (latitude and longitude), then show which signals and which frequencies cover that area. It should also include a mapping/planning tool that would allow people to virtually test out signals for given coordinates. This system should work for bands currently marked as licensed and unlicensed.

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