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Spectrum Licensing Best Practice
Saudi Arabia

Continued spectrum supply as a driver of technology evolution

Executive Summary

- **Saudi Arabian regulator CST's policy of proactive reallocation of spectrum to mobile from incumbent users has made 1300 MHz of licensed low- and mid-band spectrum available to the national mobile operators.**
- **Delays to the recent multi-band award have highlighted the risks of challenging licence conditions and the importance of making spectrum available at the right time.**
- **With plans to auction 1500 MHz and 26 GHz in the coming years, the CST is committed to continuing its progress and keeping the mobile spectrum pipeline intact.**
- **This pipeline has successfully contributed to early 5G network deployments, high levels of adoption and some of the highest download speeds globally.**

Background

With the launch of its National Transformation Plan 2020, the CST moved away from administrative assignments in favour of spectrum auctions. A key objective of the plan was to develop the digital economy and, in line with this goal, the CST planned to conduct five auctions designed to provide efficient, pro-competitive assignments.

All of these auctions have now been carried out, with the final auction delayed to late 2024. The auctions have relied on best-practice formats, such as the clock or SMRA format. Until recently, the licences only contained minor obligations, were assigned for 15-year terms to provide investment certainty, and allowed for spectrum trading. However, the 2024 award of spectrum in the 600 MHz, 700 MHz and 3.8-4 GHz bands introduced strict coverage and QoS obligations, intended to promote nationwide average download speeds of 300 Mbps.

In preparation for the auctions, the CST has been proactive in releasing spectrum from legacy users to improve spectrum supply for mobile services. Following the completion of the final auction, a total of 1300 MHz has been licenced to the major Saudi mobile operators, placing Saudi Arabia in a global leadership position in terms of sub-6 GHz mobile spectrum.

As a result of the awards to date, all of the country's mobile operators have access to large quantities of spectrum below 6 GHz and, following the most recent auction, operators have access to multiple mid-band carriers of around 100 MHz.

The CST is preparing to auction additional spectrum in the 1500 MHz and 26 GHz bands in the coming years, continuing its commitment to market-based mechanisms with clear visibility. However, there is no future spectrum roadmap looking towards 5G-A and 6G.

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Benefits from the policy

Proactive legacy user spectrum reallocation, reorganisation, and coordination has facilitated spectrum assignment to MNOs. In particular, the CST has:

- Reallocated the 600 MHz, 1800 MHz, 2300 MHz, and 2600 MHz bands from incumbent users including terrestrial TV and amateur radio.
- Planned upgrades to radio altimeters to avoid IMT interference for the recent assignment of the 3.8-4 GHz band.
- Prepared for band-sharing with satellite deployments for low-power applications in the 4–4.2 GHz band.
- Assigned spectrum on a technology-neutral basis, allowing 2G and 3G spectrum to be re-farmed.
- Prioritised the availability of contiguous spectrum for mobile operators.

As a result of the CST's proactive reallocation, Saudi Arabia became the first country in the EMEA region to award the 600 MHz band for mobile.

Ongoing challenges

The recent multi-band auction highlights the importance of making spectrum available at the right time – and with the right conditions attached. It was delayed twice amid concerns around very strict coverage and QoS obligations in the 3.8-4 GHz lots, requiring large 5G carriers to be deployed nationwide. High throughputs are required nationwide, including in sparsely populated areas, and monitored at the level of 4km^2 'pixels'. In addition, ongoing coexistence management in the 600 MHz band from audio-visual use in neighbouring countries introduces risks for operators.

Continued spectrum supply assigned using best-practice auction formats

Leadership in 5G performance and coverage

Concerns around strict coverage obligations

Final impact

Despite recent challenges, the positive impact from the large spectrum pipeline is visible in Saudi Arabia. All three mobile operators deployed 5G networks as early as 2019, and 5G population coverage reached 77% by the end of 2023, compared to 32% across the MENA region[1]. Furthermore, Saudi Arabia's median mobile download speeds[2] are amongst the highest globally. These successes highlight the benefits of providing large quantities of spectrum via well-designed market mechanisms.

1 GSMA Mobile Connectivity Index
2 Ookla Speedtest Global Index

https://www.gsma.com/spectrum/resources/best-practice-mobile-spectrum-licensing/

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