Pricing of 5G bands to be awarded in Tunisia

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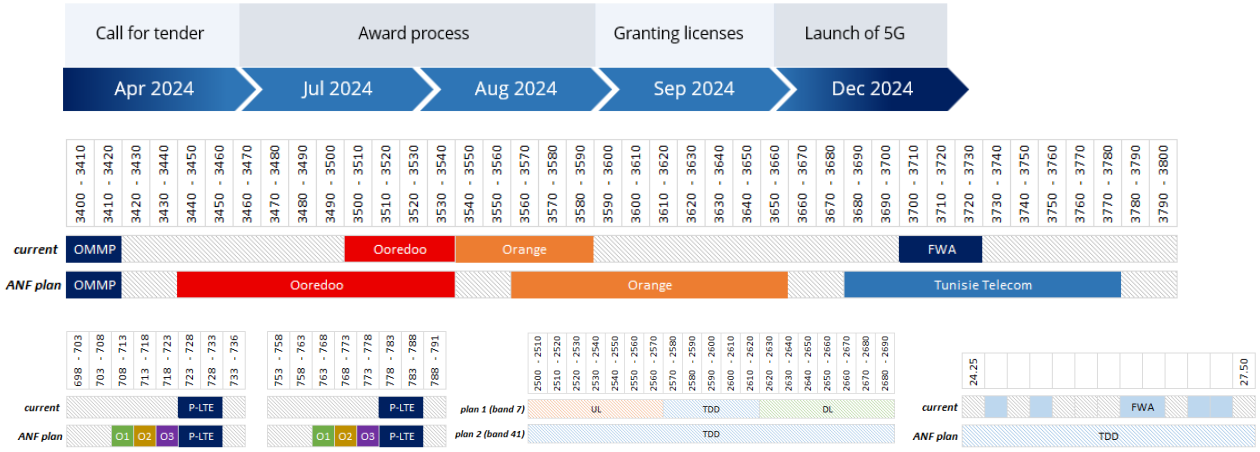
MTC Tunisia[1] announced the roadmap to 5G, in a workshop organised on the 18th of March 2024, with the aim of launching services by end-year. This followed consultations, whereby relevant bands were identified by ANF[2], and an economic feasibility study was undertaken by INTT[3].



The Tunisian market is currently served by three operators: Ooredoo, Orange, and Tunisie Telecom, operating on the bands, 800/900/1800/2100 (MHz), for 2G, 3G, and 4G services. The 3.5GHz band was already assigned to WiMAX services, and was later transitioned to LTE. INTT indicates there are 16M SIMs in Tunisia, with a mobile penetration of around 90.8%, including 65% smartphone users, and 72% FWA users.

The planned 5G schedule includes: a call for tender to be issued end-April, submission and bidding process in July-August, granting of licenses in September, and the launch of services by end-2024. The workshop indicates that, preliminary assignments for operators are defined on 700MHz and 3.5GHz, and that 2.6GHz and 26GHz bands will be available for operators to bid for, as depicted in Figure 1.

Figure 1: Schedule for 5G launch and planned bands



In this article, we review spectrum benchmarks for bands to be awarded, which may form the basis on which licenses are priced.

Benchmarks for Pricing

Benchmarking is based on license prices awarded internationally and, preferably, under similar country conditions. Our analysis makes use of **Spectre**[4], Eicon's Spectrum Pricing software, which includes a database of 4000+ awards, as well as a friendly-user interfaces that allows adjustments, and easy to use calculation processes.

Table 1: Awards available/selected for pricing

Band	# Awards	# Awards used
700MHz	44	22
2.6GHz FDD	34	17
2.6GHz TDD	16	7
3.4-3.8 GHz	68	28
26GHz	10	6

For this analysis, for the case of Tunisia 5G bands, we select awards issued over the past ten years as shown in Table 1. Differences in license duration, economic conditions, inflation, and PPP are adjusted. Auto-filtering is performed to identify outliers, and to avoid price distortions.

1 *MTC: Ministry of Communication Technologies in Tunisia*
2 *ANF: National Frequency Agency*
3 *INTT: National Telecommunications Authority*
4 *SPECTRE: web based tool for spectrum pricing, with database of awards, and automated calculation processes www.spectre-me.com*

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To obtain indicative band prices, valuation is based on two methods: (1) arithmetic mean; and (2) regression analysis. Regression is usually preferred when benchmarks span a wide range of GDPc[5] values. A third valuation method also available in Spectre, is the Distance Method[6], which requires awards in higher and lower bands than the band being valuated. However, this method cannot be applied in the case of Tunisia.

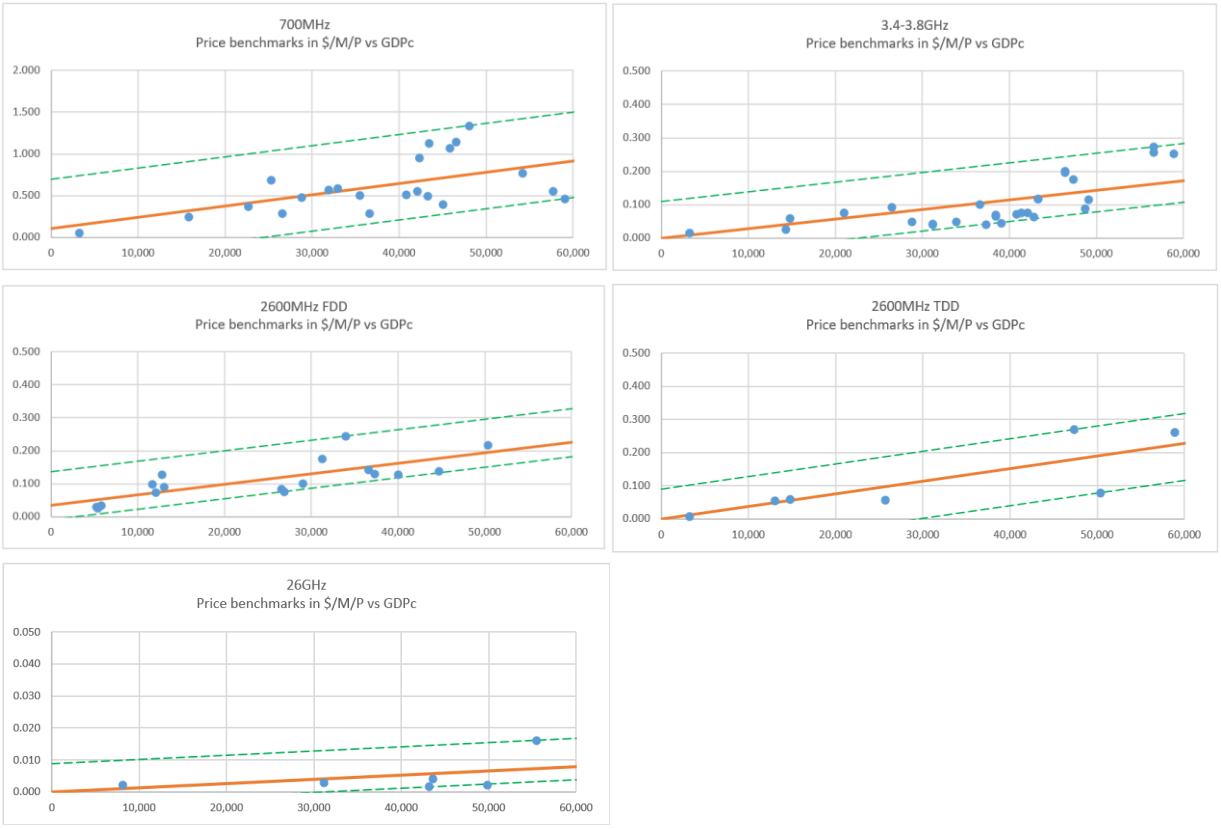
Pricing Methodolgy

The concept involves calculation of what we refer to as 'unit prices', represented in $/MHz/pop. The following adjustments are specifically made:

1. Annual fees are included as applicable, and where such information is available. License prices are calculated as sums of: (a) upfront payments (award price, plus administrative fees paid at time of award), plus (b) annual spectrum fees discounted at a rate of 8.86% per annum. In cases where delays exist between auction date, and spectrum license start date, adjustments are made to discount such values.
2. License prices are converted to USD using World Bank market exchange rates, at date of award.
3. To compare license prices on an equal basis, adjustments for duration are made by converting all licenses to a common duration, to get an NPV value, at a 8.86% discount rate. In this report, we assume a license duration of 15 years as per MTC document, but the concept can be applied to any duration as necessary.
4. License prices are adjusted for inflation by converting prices to this date (2024), using IMF inflation rates.
5. To account for differences in prices, and in levels of affluence between countries, prices are adjusted by the PPP conversion rate using IMF GDP data.
6. For awards issued to multiple operators, in the same country, on the same band, during the same award/auction process, and under the same conditions, one unit price value is derived and used by averaging total prices paid over total bandwidth, to deduce one absolute price.

Preliminary indications of spectrum prices for the 5G bands to be awarded later this year in Tunisia, are illustrated in Figure 2 – these can be elaborated upon on request.

Figure 2: Preliminary spectrum pricing based on regression analysis, for all bands on offer, using Spectre[4]



(End)

5 *GDPc: Gross Domestic Product / per capita*

6 *Distance Method: used by Ofcom (UK), in their consultations, "Proposed annual licence fees for 2100 MHz spectrum, 14 July 2021."*

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