

# Spectrum Pricing of Belgium's recent 5G Auction

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The Belgian Institute for Postal Services and Telecommunications (BIPT) concluded the planned 5G spectrum auction, raising a total of €1.42 billion. New 5G frequencies were auctioned in the 700/1400/3600 MHz bands, and 2G/4G spectrum was re-assigned in the 900/1800/2100 MHz bands. The three incumbent players: Proximus, Orange Belgium, and Telenet Group were among bidders, in addition to two new entrants Citymesh Mobile and New Research Belgium.

In this report, we analyse spectrum prices from the auction, for each of the offered bands, and compare with market prices, and with set reserve prices. We also identify bands of interest to MNOs, and their possible bidding strategies. Our analysis indicates that, among the 5G bands on offer, 700MHz raised above-market prices, as opposed to 3600MHz, which may indicate MNO's preferences for coverage bands in the early rollout phases of 5G. For 1400MHz, incumbents paid prices significantly higher than market to support downstream traffic. The contested 900/1800/2100 MHz spectrum was clearly intended for maintaining 2G/3G/4G services, where auction prices varied in comparison to reserve and market prices.

## Auction Background

Plans to auction 5G spectrum in the 700/1400/3600MHz bands were announced in June 2018, including the renewal of licenses in the 900/1800/2100 MHz bands expiring in March 2021. Spectrum was also reserved for a fourth 5G operator ahead of the auction.

Several hurdles delayed the auction, and resulted in Belgium missing the two European deadlines for 5G rollout set for 2020. To avoid further delays and to enable 5G rollout, temporary user rights were granted to incumbent operators on the (3600-3800) MHz band in July 2020. Operators proceeded with the rollout, and by December 2020, Proximus was the first to launch 5G, followed by Orange Belgium, and Telenet Group.

The long-awaited 5G auction started in June 2022. Incumbent Operators were among the bidders as well as two new entrants: Citymesh Mobile, and New Research Belgium. Citymesh, a joint venture between Romanian RCS & RDS and Belgian IT group Cegeka, have plans to launch public mobile services on 5G spectrum. New Research Belgium is already established in the B2B market and has no plans for the consumer segment.

## Auction Process and Outcome

BIPT organized the auction in three procedures, and in two phases<sup>1</sup>. In Phase 1, Procedure A (award and auction of 700/900/1800/2100 MHz), and Procedure B (auction of 3600MHz) were executed simultaneously. This was followed by Phase 2 (Procedure C), which included the auctioning of 1400 MHz.

A pre-auction round allocated reserved spectrum to new entrants, essentially lots in each of the offered bands except 1400 and 3600 MHz. Citymesh Mobile was allocated reserved spectrum on (700/900/1800/2100) MHz at the set reserve price. Existing MNOs also requested reserved spectrum to ensure continuity of services, and were each granted channels in the 900/1800/2100 MHz bands at the reserve price. The remaining spectrum was then auctioned in a SMRA format<sup>2</sup>, which was followed by an auction for the 1400MHz band, ending in 57 rounds. All three incumbents were assigned spectrum on 1400 MHz<sup>3</sup>. Figure 1 below outlines the total acquired bandwidth by each operator, from the reserved lots, and from the auction.

<sup>1</sup> "Procedure for the granting of rights of use for the 700 MHz, 900 MHz, 1400 MHz, 1800 MHz, 2100 MHz and 3600 MHz frequency bands- Information Memorandum", 14 January 2022, BIPT

<sup>2</sup> "Radio spectrum auction brings in 1.2 billion euro", 21 June 2022, BIPT Press release

<sup>3</sup> "Radio spectrum auction ultimately yields more than 1.4 billion euro", 20 July 2022, BIPT Press release

Figure 1: Auctioned and Reserved Spectrum

Operator	700		900		1400		1800		2100		3600	
	Res	Auc	Res	Auc	Res	Auc	Res	Auc	Res	Auc	Res	Auc
Proximus		20	10	10		45	30	20	20	30		100
Orange Belgium		20	10	10		30	30		20	10		100
Telenet Group		10	10	10		15	30	10	20	10		100
Citymesh Mobile	10		10				30		10			50
Network Research Belgium												20

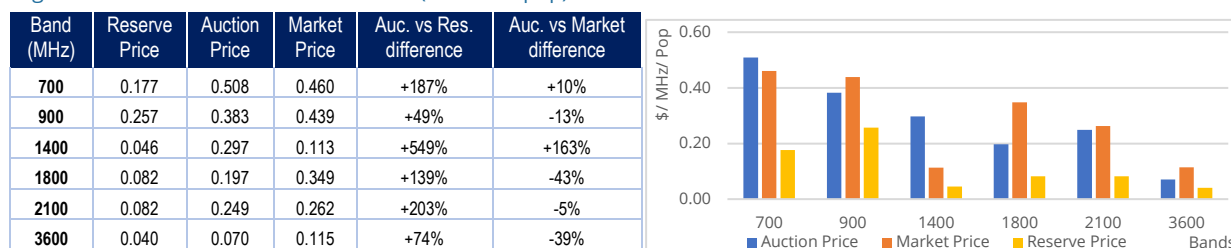
(Note total MHz shown are sum of 2 duplex channels) **Res:** Reserved **Auc:** Auctioned

## Auction Prices vs Market Prices

Benchmarking analysis based on international awards makes use of Eicon’s database of 4000+ awards, and involves adjustments for: differences in license duration, economic conditions (8.86% discount), inflation, and PPP factor using IMF data. The methodology used to obtain indicative market prices is based on arithmetic mean and regression models.

Analysis results are summarized in tabular and graphical formats as in Figure 2, where unit spectrum prices, (in \$/MHz/pop) are shown for each band: (1) based on auction outcome, and (2) based on market prices.

Figure 2: Auction Prices vs Market Prices (in \$/MHz/pop)



- 700 MHz- Despite the limited bandwidth available on 700MHz, and being a pioneer coverage band for 5G with better propagation characteristics and indoor penetration, the band was contested by MNOs raising a price 10% higher than market averages.
- 900 MHz- 4 lots of (2x5) MHz were reserved to incumbents and to new entrant Citymesh, and were assigned prior to the auction at the reserve price. Additional 3 lots of (2x5) were auctioned, and the price was marginally higher than reserve price (+49%), and lower than market prices (-13%). We presume that the additional 30MHz were to support existing 2G networks.
- 1400 MHz- The band may be intended to support 4G services with downstream traffic in SDL mode, on 4G bands and hence was contested by all incumbents in 57 rounds, resulting in an auction price significantly higher than reserve and market prices. The high auction price of the 1400MHz band may be compared to other recent benchmarks; e.g. [Low: Latvia 2022; \$0.012/M/P], and [High: Netherlands 2020; \$0.513/M/P].
- 1800 MHz- Auction prices were 43% less than market prices, and the offered 30MHz channels were contested only by Proximus and Telenet.
- 2100 MHz- Reserved spectrum was allocated at the reserve price, and the remaining was auctioned at prices higher than the reserve price (+203%). This clearly indicates MNOs strategy to support 4G traffic growth.
- 3600 MHz- Prices were marginally higher than the reserve price, yielding lower value than market prices. This may well be due to ample spectrum being offered by BIPT (370 MHz), and that MNOs at this stage prefer lower bands to support rapid rollout and better coverage.

(End)