



Commission for
Communications Regulation

DotEcon's Benchmarking Update

A report for ComReg

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An Coimisiún um Rialáil Cumarsáide
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Benchmarking update

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1 Introduction

In this note we provide a further update to the benchmarking results relative to the previous update made in December 2015. The revised benchmarking estimates take into account awards that have taken place since the last update, as well as updated PPP, CPI and population data now available from the World Bank Database.¹ We consider whether any amendment to our previous recommendations regarding minimum prices is appropriate.

All price estimates are given as a price per MHz per capita, normalised to the equivalent price of a 15-year licence in 2016 terms.

2 Awards since the last update

We observe that since the December 2015 benchmarking update², the following auctions have taken place for the relevant bands:

- a multi-band auction in Moldova (November 2015);
- a 2.6GHz auction in Taiwan (December 2015);
- a 2.6GHz auction in Russia (February 2016);
- a 3.6GHz auction in Spain (March 2016);
- a 3.4GHz-3.6GHz auction in Hungary (June 2016);
- a 2.6GHz auction in the Czech Republic (June 2016); and
- a 3.5GHz auction in Slovakia (August 2016).

There was also an auction for 800MHz and 2.6GHz spectrum in Cyprus. However, band-specific prices for this award are not obtainable as prices are for packages including spectrum from both bands.

¹ Updated from October, 2015 to April, 2016

² Document 15/140b

In Montenegro, a multi-band auction, which included unpaired 2.6GHz spectrum concluded on the 2nd of August 2016. However, detailed results have not been published.

In Moldova, 800MHz, 900MHz, 2.1GHz, 2.6GHz and 3.4GHz-3.8GHz spectrum was offered in November 2015. Orange was the only bidder, winning some lots in the 800MHz and 900MHz bands. All other spectrum remained unsold. Reserve prices, when converted to a 15-year Irish licence were set at around €0.1590³ for the 2.6GHz spectrum, and €0.0159 for the 3.4GHz/3.6GHz spectrum. It is unclear why the 2.6GHz, 3.4GHz and 3.6GHz spectrum was unsold; it might have been due to high reserve prices, but there may also have simply been a general lack of demand. In any case, the minimum price for 3.4GHz-3.8GHz spectrum set by the Moldovan regulator is just above the proposed minimum price for 3.6GHz spectrum in urban areas in Ireland, whilst the Moldovan minimum price for 2.6GHz is significantly higher.

In Taiwan, two 25MHz blocks of unpaired 2.6GHz spectrum were sold in late 2015. Minimum prices were set at approximately €0.0665 per MHz per capita when adjusted for a 15-year Irish licence. The lots sold for an average of around €0.1841.

The Russian 2.6GHz auction included a national 25MHz block, as well as 81 regional blocks, for which no information on winners or prices is available. The national block achieved a price equivalent to around €0.0506 in Irish terms. Whilst there is insufficient information available to calculate the corresponding minimum price of the national block, the regulator reports that total prices were 40% above reserve, indicating that the auction was competitive.⁴

In March 2016, 2.6GHz and 3.5GHz spectrum was sold in Spain. There is limited information available about the award; however, sources reported that Orange won a national 20MHz block of 3.5GHz spectrum,⁵ at a price of €0.0273. The 2.6GHz spectrum sold in the

³ Reserve prices were quoted in Euros. In order to be able to use PPP rates, we have first converted the reserve prices to Moldovian Leu using an exchange rate of 21.55.

⁴ <http://www.minsvyaz.ru/ru/events/34703/>

⁵

http://economia.elpais.com/economia/2016/03/21/actualidad/1458582306_344874.html and block size reported in : <http://www.xatakamovil.com/conectividad/la-subasta-de-nuevo-espectro-para-telefonía-movil-en-los-2-6-ghz-y-3-5-ghz-se-aplaza-a-enero>

award was paired and is therefore not included in our sample. Information on band-specific minimum prices is not available; however, the combined price at which the 2.6GHz and 3.5GHz spectrum was sold is approximately three times the amount of the starting prices, indicating that the auction was competitive, though it is not clear how much of this is attributable to 3.5GHz spectrum.

The Hungarian auction, which took place in June 2016, included 100MHz of paired 3.4GHz spectrum, and 200MHz of unpaired 3.6GHz spectrum. Two bidders won spectrum at an average price of €0.0068 per MHz per capita, just above the reserve price of €0.0065. However, 40MHz of the paired spectrum and 180MHz of the unpaired spectrum remained unsold, indicating that demand for this spectrum was rather limited.

In June 2016, the Czech regulator auctioned previously unallocated 1800MHz and 2.6GHz spectrum, using an SMRA format. This included two 25MHz blocks of unpaired 2.6GHz spectrum, which were sold for around €0.1320, approximately five times the reserve price.

Two bidders competed for 3.5GHz spectrum in Slovakia in an auction for which results were announced in August 2016. O2 won all lots available (four TDD and one FDD) for a price of around €0.0084 when converted to Irish licence terms. This was about twice as much as the minimum price.

Table 1 summarises prices and minimum prices per MHz per capita for these recent awards.

Table 1: Prices achieved in recent awards converted to a 15-year duration in Ireland

Award	Band	Price per MHz pop	Minimum price per MHz pop
Moldova multi-band	2.6GHz	-	€0.1590
Moldova multi-band	3.4GHz, 3.6GHz	-	€0.0159
Taiwan 2.6GHz	2.6GHz unpaired	€0.1841	€0.0665
Russia 2.6GHz	2.6GHz unpaired	€0.0506	.*
Spain 2.6GHz and 3.6GHz	3.6GHz	€0.0273	.*
Hungary 3.4GHz-3.8GHz	3.4GHz, 3.6GHz	€0.0068	€0.0065
Czech remaining 1800MHz and 2.6GHz	2.6GHz unpaired	€0.1320	€0.0246
Slovakia 3.5GHz	3.5GHz	€0.0084	€0.0042

* Specific minimum prices unknown, but in combination with other lots minimum prices were significantly above final prices.

3 Updated economic indicators

In Table 2 we set out revised average prices when taking into account updated economic indicators, as well as including the recent

awards discussed above and shown in Table 1.⁶ For ease of comparison, we also report the averages presented in our previous benchmarking note of December 2015 in Table 3 below.

Table 2: Updated average prices per MHz per capita for a 15-year Irish licence

	All	European	Since 2010	European since 2010
All	€0.0247	€0.0194	€0.0484	€0.0380
3.6GHz	€0.0152	€0.0084	€0.0116	€0.0116
2.6GHz	€0.0412	€0.0372	€0.0762	€0.0607
2.3GHz	€0.0287	€0.0086	€0.1146	NA

Table 3: Average prices per MHz per capita for a 15-year Irish licence, published in December 2015

	All	European	Since 2010	European since 2010
All	€0.0221	€0.0153	€0.0367	€0.0325
3.6GHz	€0.0157	€0.0071	€0.0086	€0.0086
2.6GHz	€0.0313	€0.0348	€0.0469	€0.0469
2.3GHz	€0.0285	€0.0086	€0.1149	NA

None of the recent awards included 2.3GHz spectrum. Benchmarks for this band have only changed slightly due to updated PPP, CPI and population figures.

The updated 2.6GHz benchmarks are somewhat higher than the previous estimates, in particular for awards since 2010 where the average has increased from €0.0469 to €0.0762 per MHz per capita. This is mainly due to the unpaired 2.6GHz spectrum in recent auctions selling at higher prices, in particular in Taiwan and the

⁶ The new data points included are all of those listed in Table 1, except for the award in Moldova as no 2.6GHz, 3.4GHz or 3.6GHz were sold.

Czech Republic. The Taiwanese and the Czech award are each identified as an outlier when considering (respectively) all 2.6GHz observations and only European ones; this reduces the increase in average prices for these sub-samples. However, neither award is identified as an outlier in the sample of all observations since 2010 or European observations since 2010.

In the 3.4GHz and 3.6GHz band, recent and European averages are just above the previous estimates. Out of the three new benchmarks in this band, the Slovakian one is very close to the previous average, the Hungarian one is just below it and the Spanish one is significantly above.

When comparing averages across bands, the most notable difference is the European average being somewhat higher than the previous one. This is largely due to small changes causing the Spain (2011) 2.6GHz benchmark, which was previously excluded as an outlier, now to lie within the boundaries for identifying outliers (so it is now included in the price estimate calculations). The recent Czech 2.6GHz auction is excluded as an outlier when considering the sample of European auctions only.

The recent Taiwanese data point is identified as an outlier when considering the entire sample, somewhat limiting the effect of the addition of recent awards on the average across all bands.

4 Minimum price recommendations

We previously recommended a minimum price for the Irish 3.4GHz-3.8GHz auction of €0.010 per MHz per capita in rural areas and €0.015 per MHz per capita in urban areas. The updated evidence presented in this note is consistent with these proposed minimum prices. In particular, the average 3.6GHz figure reported in Table 2 above is very similar to the proposed minimum price for urban areas, whilst the average price of 3.6GHz spectrum in awards since 2010 lie between the proposed rural and urban minimum prices. As before, average prices achieved for 2.6GHz and 2.3GHz are significantly higher than the proposed minimum prices.

Overall, the updated benchmarking results presented above support our view that minimum prices of €0.010 and €0.015 per MHz per

capita⁷ for rural and urban areas respectively are suitable for the 3.6GHz award in Ireland. We continue to hold the view that the proposed minimum prices are high enough to discourage any potential speculative bidding behaviour and tacit collusion, yet low enough to avoid choking off demand.

⁷ DotEcon notes the publication of the first results from Ireland's Census 2016, published on 14 July. However, we note that these results are preliminary, and detailed final figures on a regional basis (city and suburbs) will not be available until April 2017. Furthermore, the boundaries associated with such regions may change. Therefore, in order to use a consistent population base across all regions the population figures from Census 2011 remain appropriate.