The Italian approach to the licensing of spectrum in 5G pioneer bands

Santo Domingo, 27 August 2019
Italy’s 5G pioneer bands spectrum auction

1st European country with simultaneous award of all three 5G pioneer bands

Innovative auction by means of the “use it or lease it”, collective obligations and “club use” clauses

Aimed at ensuring a wide level of 5G coverage and access for all users in the national territory (including most communes affected by digital divide and the touristic and transport areas)

Particular packaging of lots in the 3.6-3.8 GHz band drove the price paid by operators to €6.5bn
Italy’s multiband auction: a state of the art?

“The Italian NRA has decided to split-up frequencies in a manner that resulted in a huge expense for telecoms operators.

The final result of the auction is that there are less resources to invest in 5G deployment in Italy and more money ended-up in the pocket of the Ministry of Economy.”

Vittorio Colao: former CEO at Vodafone Group
Pricing - Italy has the highest price (€) per MHz and population in the 3.4–3.8 GHz band
Auction format

Licence conditions

Packaging & Pricing
Auction format
Italy auctioned 1275 MHz of spectrum in the 5G pioneer bands:

- 75 MHz in the 700 MHz band
- 200 MHz in the 3.6-3.8 GHz band
- 1000 MHz in the 26.5-27.5 GHz band
## Auction format - 5G pioneer bands auctioned in Italy

<table>
<thead>
<tr>
<th>Band</th>
<th>Spectrum offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>700 MHz</td>
<td>Six lots of 2x5 MHz (FDD)</td>
</tr>
<tr>
<td></td>
<td>Three lots of 5 MHz (SDL)</td>
</tr>
<tr>
<td>3.6-3.8 GHz</td>
<td>Two lots of 80 MHz (TDD)</td>
</tr>
<tr>
<td></td>
<td>Two lots of 20 MHz (TDD)</td>
</tr>
<tr>
<td>26.5-27.5 GHz</td>
<td>Five lots of 200 MHz</td>
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</tbody>
</table>
# Auction format - special rules for new entrants

<table>
<thead>
<tr>
<th>Issue</th>
<th>Details</th>
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</thead>
</table>
| Reserved spectrum                     | 700 MHz (FDD)  
Two lots of 2x5 MHz will be pre-auctioned to new entrants and the remedy taker operator (Iliad)                                    |
| More lenient coverage obligations     | Additional year to comply with the minimum coverage obligations in the 700 MHz (FDD) band                                              |
| Right to national roaming             | Incumbent mobile operators that win spectrum in the 700 MHz (FDD) band must offer national roaming on their 700, 800 and 900 MHz networks to a new entrant on fair, non-discriminatory and transparent conditions for:  
  - 2.5 years in the entire national territory; and  
  - 5 years in the areas not covered by the new entrant; if the new entrant has already covered at least 10% of the population with its own frequencies. |
**Auction format - spectrum caps & licence duration**

**SMRA**: Simultaneous Multiple Round Auction

**Type and validity of licences**: national licences expiring on 31 December 2037

<table>
<thead>
<tr>
<th>Band</th>
<th>Cap</th>
<th>Licence duration</th>
</tr>
</thead>
</table>
| 700 MHz (FDD)         | • **Intra-band**: 2x15 MHz  
                        | • **Inter-band**: 2x30 MHz including the 800 MHz and 900 MHz bands | 15.5 years       |
| 3.6-3.8 GHz           | • **Intra-band**: 100 MHz  
                        | • **Inter-band**: 100 MHz including 3.4-3.6 GHz band               | 18 years         |
| 26.5-27.5 GHz         | 400 MHz                                                             | 18 years         |
Licence conditions
Licence conditions - three kinds of obligations

1. Spectrum usage

2. Coverage
   - Applying only to 700 MHz (FDD) and 3.6-3.8 GHz

3. Access
1. Spectrum usage

Starting from the award (or from the availability of the assigned frequencies, if later) licensees must use the awarded frequencies in all the Italian provinces within:

<table>
<thead>
<tr>
<th>Band</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>700 MHz</td>
<td>3 years</td>
</tr>
<tr>
<td>3.6-3.8 GHz</td>
<td>2 years</td>
</tr>
<tr>
<td>26.5-27.5 GHz</td>
<td>4 years</td>
</tr>
</tbody>
</table>
2. Coverage

Individual coverage obligations 700 MHz (FDD)
2. Coverage - population

- **80% of the population** with 5G services within 3 years from the availability of spectrum (4 years for new entrants)

- Coverage must include communes with more than 30,000 people and the main town of every province
2. Coverage – touristic areas

- **Touristic areas**: significant number of tourists with respect to the residents

- **Provide 5G services in a certain number of touristic locations** within 4 years from the availability of the spectrum. The ministry will define the touristic areas to be covered within 2 years from the assignment.
2. Coverage

Collective coverage obligations 700 MHz (FDD)
2. Coverage - population

- 99.4% of the population with 5G services within 4.5 years from the availability of the spectrum
- Coverage must include at least 90% of the population of each of 120 communes identified as “deep digital divide” areas
- Roaming and spectrum pooling is permitted
2. Coverage – major terrestrial transport paths

- 5G services in the principal national roads and railways through reciprocal agreements within 3.5 years from the availability of spectrum (e.g. motorways, high speed railways, ports and airports)

- Coverage must include transport corridors identified at European level

- Roaming and spectrum pooling is permitted (mandatory in extra-urban areas)
2. Coverage

Individual coverage obligations 3.6-3.8 GHz
2. Coverage - population

- 80 MHz lots: 10% of the communes in each region with fewer than 5,000 people and that are not covered by ultra-broadband (obligation list)

- 20 MHz lots: 5% of the population in each region within 4 years from the availability of the spectrum
2. Coverage - use-it or lease-it

- Other operators without frequencies in bands up to 3.6-3.8 GHz **can use the frequencies in the 3.6-3.8 GHz band not used by the licensees in any communes of the “free list” by leasing them**

- **“free list”:** the set of communes with less than 5,000 inhabitants not included in the obligation lists of all licensees
3. Access (3.6-3.8 GHz)

- Operators holding at least 80 MHz in the 3.4-3.8 GHz band are obliged to provide access to service providers fostering the development of

- This obligation is aimed at fostering verticals (and their service providers) to develop innovative business cases
3. Access (26 GHz) - Club use model

- Each licensee can use all the awarded spectrum (up to 1 GHz) in areas where frequencies are not used by other licensees.
- Each license holder has preemptive rights on its assigned lot.
Each licensee must provide wholesale access to other players for the development of 5G services

Non-telcos (verticals)
Packaging & Pricing
# Packaging 3.6-3.8 GHz band - proposed options

<table>
<thead>
<tr>
<th>Option number</th>
<th>Packaging</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option 1</strong></td>
<td>2 lots x 100 MHz</td>
<td>Best technical package</td>
<td>Problems for new entrants/competition</td>
</tr>
<tr>
<td><strong>Option 2</strong></td>
<td>4 lots x 50 MHz</td>
<td>Increases the audience of potential bidders</td>
<td>Fragmentation of spectrum and introduction of speculative trading/leasing/sharing risks</td>
</tr>
<tr>
<td><strong>Option 3</strong></td>
<td>2 lots x 80 MHz, 1 lot x 40 MHz</td>
<td>Consistent with a differentiated service demand + fair compromise with respect to potential competition</td>
<td>No spectrum in the band for 1 of the 4 Italian MNOs</td>
</tr>
</tbody>
</table>

# Packaging 3.6-3.8 GHz band – adopted option

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<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option 4</strong></td>
<td>2 lots x 80 MHz, 2 lots x 20 MHz</td>
<td>Attenuate the risk of overbidding against new entrants</td>
<td>20 MHz small lots of contiguous spectrum</td>
</tr>
<tr>
<td>Country</td>
<td>Band</td>
<td>Blocks</td>
<td>Total MHz</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td>-------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>AT</td>
<td>3.4-3.8 GHz</td>
<td>10 MHz</td>
<td>390 MHz</td>
</tr>
<tr>
<td>DE</td>
<td>3.4-3.7 GHz</td>
<td>10 MHz</td>
<td>300 MHz</td>
</tr>
</tbody>
</table>
| IT      | 3.6-3.8 GHz| 2 x 80 MHz
2 x 20 MHz | 200 MHz | 100 MHz | €4.35bn | 18 years |
| ES      | 3.6-3.8 GHz| 5 MHz                   | 200 MHz   | 120 MHz       | €438m       | 20 years          |
| UK      | 3.6-3.8 GHz| 5 MHz                   | 120 MHz   | 416 MHz of all relevant spectrum for mobile | - | Indefinite (initial term 20 years) |

Packaging flexibility in the 3.4-3.8 GHz band: Austria, Germany, Spain and UK
Pricing - Italy has the highest price (€) per MHz and population in the 3.4–3.8 GHz band
Italy’s multiband auction: a state of the art???
Thank you!

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