U.S. Small Cells Total Addressable Market, 2012 - 2017: *Sizing a Growing Opportunity*

Market Study
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Abstract

To meet the rising demand for mobile data, operators will need to pursue a multi-pronged approach to upgrading and backfilling for capacity and throughput on their cellular voice/data networks. This approach, which combines RAN upgrades, new licensed spectrum, WiFi, small cells and distributed antenna systems (DAS), is typically referred to as the heterogeneous network or het-net.

The small cell term is relatively new and is sometimes used in different ways. *iG*R defines a "small cell" as a low power product (relative to macrocells) that operates on licensed frequencies and functions as small, self-contained cellular base stations. Small cells include femtocells, picocells and metrocells:

- Metrocells are, as compared to macrocells, low power cell sites that operate on an operator's licensed frequency to provide additional coverage and/or capacity in a given area. There are three types of metrocells: those that operate on 3G only, 4G only and those that can operate on both.
- Residential femtocells are one way mobile operators can improve the quality of their subscribers' cellular voice service – primarily from the standpoint of creating or improving coverage inside a home. Most residential femtocells deployed in the U.S. today were rolled out to improve coverage for high-value customers.
- A picocell is, in essence, a larger femtocell that is deployed into a business or small venue. The typical picocell is physically larger than a femtocell, has a higher power output (between 100 to 150 milliwatts) and, consequently, has a longer range and the ability to support a larger area, traffic capacity and/or more concurrent users (between 8 to 32).

This report discusses the opportunity for and forecasts the:

- Total addressable market for metrocells for both 3G and 4G LTE networks
- Total addressable market forecast for residential femtocells in the U.S.
- Total addressable market for enterprise picocells in the U.S.

Key questions addressed:

- How does *iG*R define small cells in general?
- What are metrocells, femtocells, and picocells?
- How do metrocells, femtocells, and picocells work?

- What are the benefits of small cells?
- How do metrocells fit into operators' evolving networks?
- Where are metrocells, femtocells, and picocells most likely to be located? What is their role?
- How much mobile data do U.S. end users consume and/or demand?
- How much mobile data capacity will be required in the next five years?
- What are the limitations / technical challenges surrounding small cell deployments?
- What are the use cases for metrocells, femtocells, and picocells?
- What is the total addressable market forecast for metrocell installations in the U.S.?
- What are the key elements and assumptions in *iG*R total addressable market forecast for U.S. picocells?
- What is the total addressable market forecast for picocell installations in the U.S.?
- What qualities do consumers consider when they rate the quality of the voice reception in their home?
- How do consumers rate the quality of the voice reception in their home?
- What is the total addressable market for residential femtocells in the U.S.?
- How many femtocells are installed in U.S. households?
- How does these aggressive and conservative use cases impact the installed base forecast?
- How can femtocells be used to offload macro cellular network traffic?
- What are the forecasts for femtocell installation in the U.S.?

Who should read this report?

- Mobile operators
- Infrastructure OEMs
- Small cell product and solution vendors
- Backhaul service providers and equipment OEMs
- Financial analysts and investors.