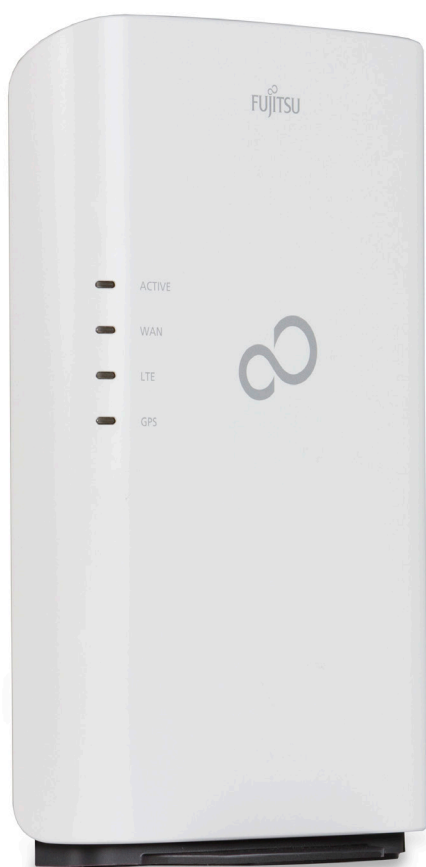


LS100 Series Residential Femtocell



The LS100 series residential femtocell delivers field-proven, interoperable 4G/LTE. Already widely deployed, this femtocell also offers unparalleled interference management and signal quality.

LS100 Series Residential Femtocell

High-Quality Residential LTE Wireless Access

The Fujitsu LS100 series femtocell is a small and lightweight indoor base station that provides high-quality wireless access in residential areas. The femtocell offers unique interference control capabilities, high-efficiency frequency usage, and excellent voice quality. Overall, the BroadOne LS100 femtocell not only reduces operations cost for mobile service providers, it also delivers a unmatched user experience to subscribers.

Plug-and-Play

The LS100 femtocell has a plug-and-play function that enables simple automatic installation when the unit is connected to a broadband network.

Voice over LTE

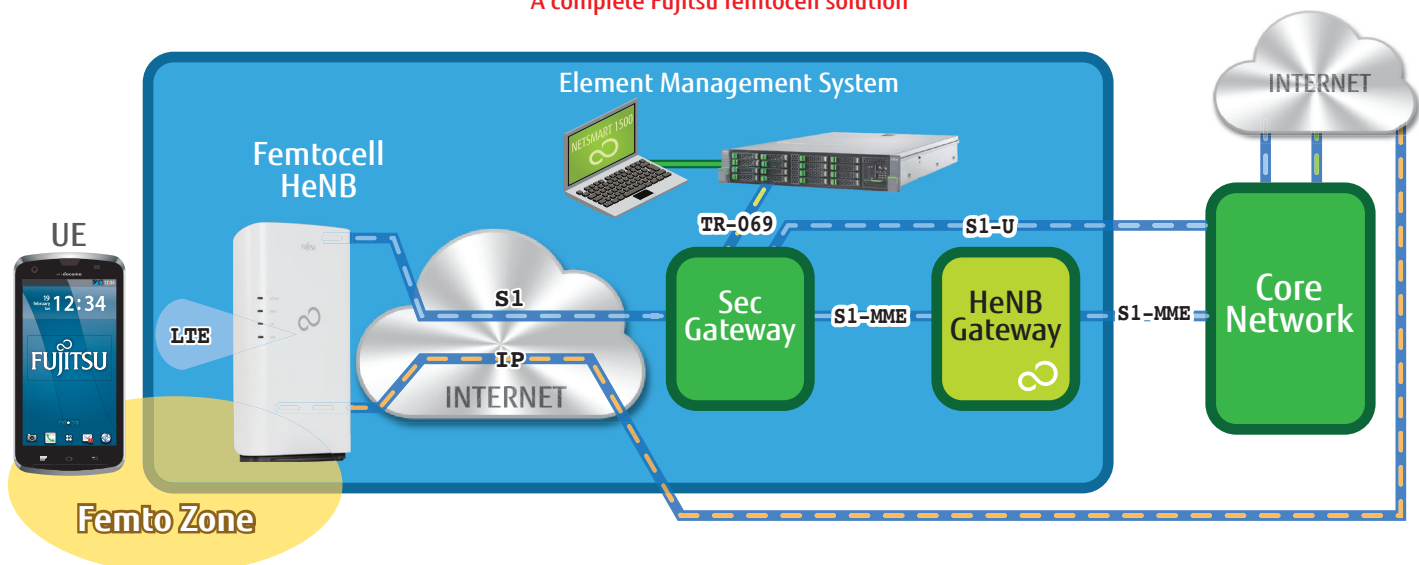
The Fujitsu LS100 femtocell supports Voice over LTE (VoLTE). This relieves the cell of simultaneous voice calls. VoLTE efficiently and seamlessly handles all simultaneous calls based on network capacity, whereas 3G systems typically only provide a best-effort approach for handling simultaneous calls.

The femtocell utilizes a high-priority Quality of Service (QoS) channel for voice to ensure that the quality is sufficient to support the voice call over other "best effort" services. Since VoLTE utilizes Voice over IP (VoIP), it can sustain better voice fidelity than traditional 3G voice, as the sampling rate can be significantly higher than the 3G voice sampling, thus providing high-quality voice connections, assuming the data channel is sufficient. Since VoLTE is utilizing another data channel within the LTE link, it has the ability to extend the battery life of the user equipment (UE) over other femtocell products that utilize only 3G voice.

Superior User Experience

In addition to operations cost savings for service providers, the LS100 femtocell can enhance residential customer loyalty and retention by increasing end-user service quality. The femtocell offers full 4G access, five-bar indoor coverage, and faster mobile data service, especially among high-end subscribers who operate multiple smart devices in their homes.

A complete Fujitsu femtocell solution



LS100 Series Residential Femtocell

Features and Benefits

Interference Control and Optimal RF Resource Allocation

The Fujitsu LS100 series femtocell uses a cognitive and learning mechanism, which can directly measure interference or measure the interference situation via the User Equipment (UE) feedback, and make intelligent decisions on radio frequency (RF) resource allocation. The interference control algorithms require no assistance from macrocells or neighboring femtocells. The femtocell itself makes multiple measurements, utilizing information from the UE, enabling the femtocell to learn the current interference situation on the downlink and uplink, in addition to the current locations of UE. From these, the RF resources are allocated in an optimum way to maximize the capacity and minimize the interference. There are four main interference control mechanisms:

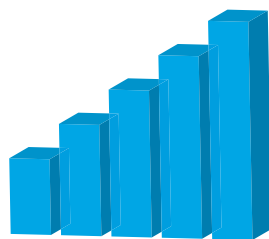
- Power control
- Timing control
- Frequency/bandwidth control
- Switching control

Plug-and-Play and Self-Configuration

The LS100 femtocell provides plug-and-play self-configuration functionality. This auto-configuration capability enables service providers to put the femtocell into service on the network and configure the necessary parameters automatically without any action from the customer.

Installation can be accomplished in three easy steps, after which the femtocell is ready for service use:

1. Connect the Ethernet cable.
2. Power on the femtocell.
3. Wait for the system to complete auto configuration.
 - Auto configuration consists of femtocell authentication, IPSec security tunnel and software/configuration download.



**5 BARS
All The Time**



Reduced Interference



**Faster
Data Rates**



**Voice over
LTE**

LS100 Series Residential Femtocell

Features and Specifications

System Overview

LTE

- LTE FDD/TDD, 16 users; 5, 10, 15 MHz bandwidth; single-band with two bands selectable
- 2x2 MIMO downlink for improved coverage/capacity
- Uplink diversity for improved coverage/capacity
- Circuit Switched Fallback (CSFB)
- Interference control (power/timing/bandwidth/switching) and interference management
- Voice over LTE
- Up to 37 Mbps @ 5 MHz,
Up to 75 Mbps @ 10 MHz and
Up to 112 Mbps @ 15 MHz (DL) LTE throughput
- Plug & play

HeNodeB Gateway

- Supports minimum 50,000 FAP (Femto Access Points) per unit
- S1 control plane termination (SCTP/S1-AP)
- S1 user plane traffic offload (3GPP TR 23.829)
- 10 Gbps throughput
- 13U chassis with 14 slots (12 packet blades + 2 switch blades)
- Advanced TCA® standard (PCIMG3.0) compliant
- Ipv4/IPv6 Support (per RFC 1883)
- Paging Optimization
- Closed/Hybrid/Open Mode Handover
- Geographic redundancy support

HeNB EMS

- Remote control (reboot/reset/shut down)
- Performance management/maintenance
- Alarm & fault management
- Security management
- Supports up to 1,000,000 FAP
- HTTP/TLS/SOAP/TR-069 (CWMP)/SNMP support
- System event records
- TR-069 RPC configuration management
- Software download
- Inventory information management
- System scheduling management
- Supervisory control management
- Subscriber management
- Northbound Interface support

Available Interfaces

- LTE Band 4 (AWS), Band 5 (850 MHz), Band 13 (700 MHz), Band 14 (700 MHz public safety)
- LAN Ethernet (RJ-45)
- External GPS antenna (1575.4 MHz)
- AC/DC power connector
- Backhaul 100Base-T/1000Base-T interface

Features and Specifications

Operating Environment

Femtocell

- Temperature: 32–104 °F (0–40 °C)
- Humidity: 5 to 95% noncondensing
- Indoor environment

AC adapter

- Temperature: 32–104 °F (0–40 °C)
- Humidity: 5 to 95% noncondensing
- Indoor environment

Maximum Power Consumption (heat dissipation)

Input power	100–240 V AC
Femtocell power consumption	13.5 W (46.0 BTU)
LTE output power	50 mW per carrier @ 10 MHz (0.0028 BTU)
AC adapter output voltage	12 V DC (+/-5%)

Physical Characteristics

Femtocell	Dimensions (H × W × D): 8.7 × 5.7 × 1.3" (220 × 143 × 32 mm) Weight: 0.93 lb (420 g)
AC adapter	Dimensions (H × W × D): 4.1 × 2.0 × 1.3" (103 × 52 × 32 mm) Weight: 0.40 lb (180 g)

Regulatory and Standards Compliance

- FCC/IC–FCC Title 47, Part 15 (Class B), Part 27, Part 90/ICES-003
- UL/CE–UL 60950-1/CISPR 22
- Safety–UL 60825-1/60825-2
- 3GPP Release 9



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