Our nanoBTS small cells are complete GSM base stations which use the standard Um interface to support all GSM handsets, and an Abis interface carried over IP for low cost backhaul.

**nanoBTS Access Point**

Unlike repeaters, each nanoBTS picocell actually adds capacity to your network while avoiding cell distortion and interference issues, solving handover, and integrating with existing network management systems. nanoGSM reduces capex with low-cost base stations and reduces opex with simple, straightforward IP backhaul. It’s driving down the cost of adding coverage and capacity for operators all over the world.

EDGE support gives up to three times the data rate of standard GPRS. In addition, using half rate AMR means that each nanoBTS can provide up to 7.3 Erlangs - enough to support over 300 users with a 20 mErlang traffic profile.

They also have the full benefits of the existing nanoBTS picocell range including:

- Low cost IP backhaul
- Simple deployment - using a single Ethernet connection for power, traffic and signaling
- Network Listen™ to supplement RF planning allowing planners to see into the difficult indoor environment to optimize coverage and avoid interference issues.

**Viper™ virtualised enterprise RAN platform**

The nanoBTS is part of ip.access’ Viper end-to-end small cell platform for enterprise RAN, which integrates the following components:

- A range of plug-and-play 2G, 3G and 4G small cell Access Points for small, medium and large enterprise deployments
- Virtualised Gateways which securely handle and route all traffic between the APs and the operator’s core network
- As A Service deployment models, including core network integration, AP deployment, and network operation.
**Radio interface parameters**

<table>
<thead>
<tr>
<th>GSM 850 Model</th>
<th>GSM 900 Model</th>
<th>GSM 1800 Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmit frequency</td>
<td>869-894MHz</td>
<td>925-960MHz</td>
</tr>
<tr>
<td>Max. output power</td>
<td>+20 dBm</td>
<td>+20 dBm</td>
</tr>
<tr>
<td>Min output power</td>
<td>-4 dBm</td>
<td>-4 dBm</td>
</tr>
<tr>
<td>Receive frequency</td>
<td>824-849MHz</td>
<td>880-915MHz</td>
</tr>
</tbody>
</table>

**Channel Support**

Each nanoBTS supports a single TRX and can act as a standalone BTS. Up to 4 nanoBTS can also be connected to act as a multi-TRX BTS.

**Single TRX or C0 of Multi-TRX**

- T50 = full BCCH, combined BCCH or combined BCCH with CBCH.
- T51-7 = TCH/F/H, PDCH or Dynamic PDCH/TCH.
- Additionally T51 may be SDCCH/8 + SACCH/C8 (with optional CBCH).

**Multi TRX (non C0)**

- T50-7 = TCH/F/H.
- Additionally T51 may be SDCCH/8 + SACCH/C8.

**User Services**

- **Tele-services**
  - Telephony, SMS MT/PP, SMS MO/PP
- **SAPB support**
  - CB single message or user cell decryption
- **Cellular text mode**
  - Speech format support
- **GSM FR and EFR, AMR (full and half-rate dynamic AMR based on QoS and load)**
- **Circuit switched data**
  - Single slot BS20 at up to 9.6kb/s
  - BS21-26, plus BS61, BS81
- **GPRS support**
  - GPRS Coding Schemes: CS 1-4
  - E-GPRS Modulation and Coding Schemes: MCS 1-9
  - Multi-slot: Class 12
  - Dynamic PDCH for optimizing mix of service for voice/data
- **Link adaptation**
  - E-GPRS incremental redundancy and dynamic window size

**Security Services**

- **Air interface** - A5/1, A5/3
- **Abis over IP interface**
  - Signaling and management - TLS/AES
  - Voice - secure RTP/AES
  - GPRS - secure RTP/AES

**System features**

- **Channel assignment and clashmark**
- **Directed retry based on load, power and cell priority**
- **Handover**
- **BTS software update via BSC**
- **Abis link performance monitoring**

**Physical & Electrical**

- **Electrical interface**
  - Single RJ45 auto-select 10/100 Ethernet supporting PoE
  - Timing Interface Bus (TIB) providing nanoBTS interconnect for multi-TRX functionality
- **Power supply**
  - Power supply type: Power-over-Ethernet via supplied adapter or from PoE switch
- **Supply voltage range**: 38-57V DC
- **Power consumption**: 13W

| Dimensions | 295 x 224 x 63 mm |
| Weight     | 2 kg |
| Temp. range | -5° to 45°C ambient |
| Humidity   | 5%-90% non-condensing |
| Mounting   | Wall or ceiling, with bracket provided. |

For multi TRX a second BTS can be mounted on top of the first.

**Standards**

- CE marked, UL & FCC listed