Our nanoBTS Access Points (APs) are complete GSM base stations that use the standard Um interface to support all GSM handsets and an Abis interface carried over IP for low cost backhaul.

**The nanoBTS Access Point**

Unlike repeaters, each nanoBTS picocell 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 signalling
- 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 APs 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
nanoBTS 165 models

**GSM 850/900 Model (165DU/165CU)**
- Tx frequency: 869-894MHz/925-960MHz
- Max output power: +20 dBm
- Min output power: +4 dBm
- Rx frequency: 824-849MHz/880-915MHz

**GSM 1800/1900 Model (165G/165H)**
- Tx frequency: 1805-1880MHz/1930-1990MHz
- Max output power: +23 dBm
- Min output power: +1 dBm
- Rx frequency: 1710-1785MHz/1850-1910MHz

**All models**
- Performance: GSM 05:05
- Channel spacing: 200kHz
- Output power control: 12 steps
- Rx gain control: 26 steps
- Rx sensitivity: -106 dBm
- Max Rx input power: +10 dBm

**Channel Support**
- Each nanoBTS supports a single TRX and can act as a standalone BTS
- Up to 4 nanoBTSs can be connected to act as a multi-TRX BTS
- **Single TRX or C0 of Multi-TRX**
  - TSO = full BCCH, combined BCCH or combined BCCH with CBCH
  - TS1-7 = TCH/F/H, PDCH or Dynamic PDCH/TCH
  - Additionally TS1 may be SDCCH/8 + SACCH/C8 (with optional CBCH)
- **Multi TRX (non C0)**
  - TS0-7 = TCH/F/H
  - Additionally TS1 may be SDCCH/8 + SACCH/CB

**User Services**

**Teleservices**
- Telephony, SMS MT/PP, SMS MO/PP
- SABP interface of SMS
- CB single message or user cell description
- Cellular text mode

**Speech format support**
- GSM HR, 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:
  - Signalling and management - TSL/AES
  - Voice - secure RTP/AES
  - GPRS - secure RTP/AES

**System features**
- Channel assignment and classmark
- Direct retry based on load, power and cell priority
- Handover
- BTS software update via BSC
- Abis link performance monitoring
- Network Listen (NWL)
- Uplink interference monitoring
- OCXO for high stability internal frequency

**Network Interfaces**
- Single RJ45 auto-select 10/100 Ethernet supporting PoE
- Timing Interface Bus (TIB) for multi-TRX functionality BTS interconnect

**Power supply**
- PoE: Via supplied adaptor or PoE switch
- Supply voltage range: 38V to 57V DC
- Power consumption: 13W

**Environmental & physical**
- Dimensions: 295 x 224 x 63mm
- Weight: 2kg
- Temperature range: -5° to 45°C
- Operating humidity: 5 to 90% non-condensing
- Ingress protection: IP40

**Mounting**
- Bracket for wall or ceiling mounting
- For a multi-TRX a second nanoBTS can be mounted on top of the first