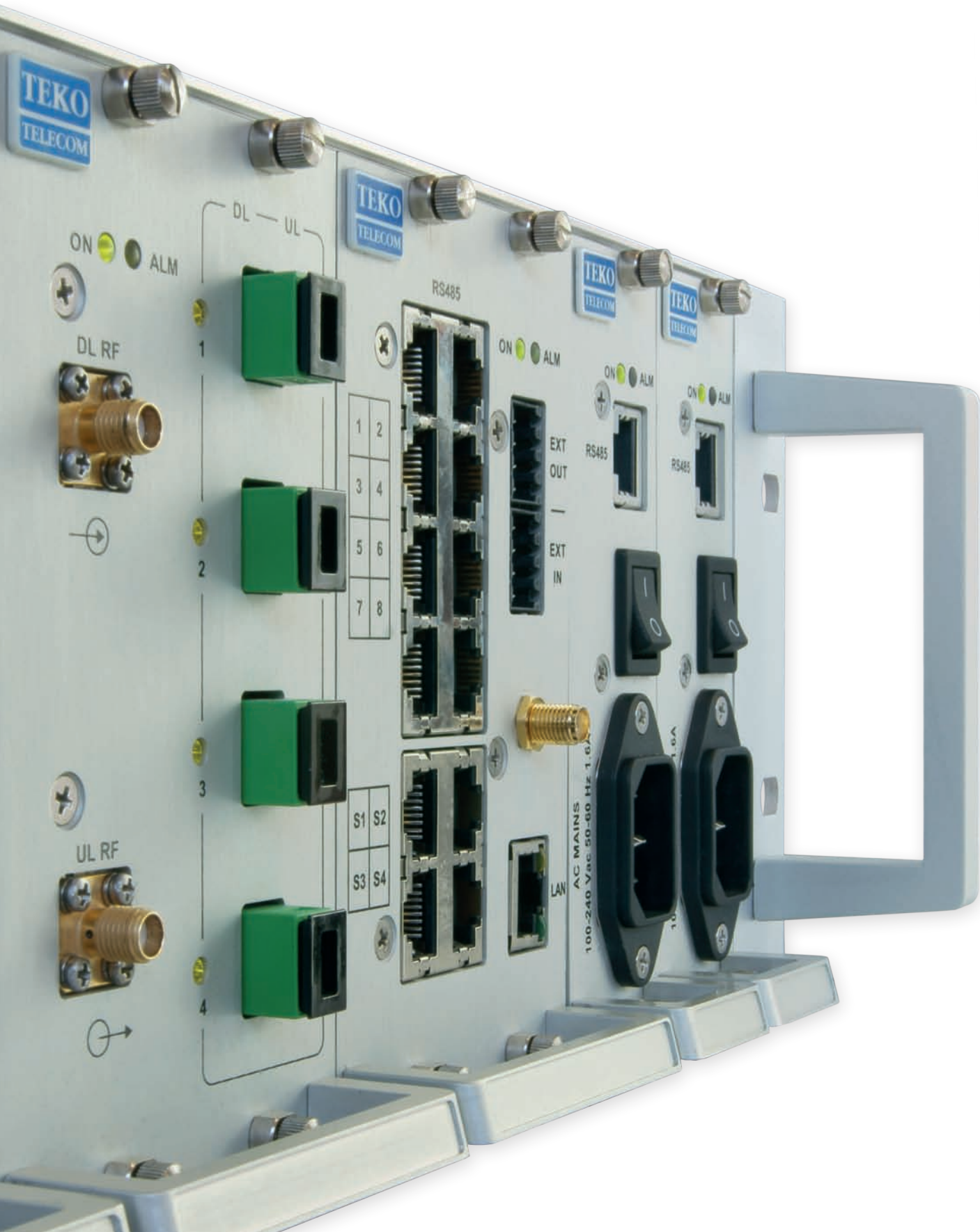


| Let us repeat!



TEKO TELECOM COVERAGE AND CAPACITY SYSTEMS

Teko Telecom Coverage and Capacity Systems are multi-band multi-operator Systems that provide a wide range of flexible and reliable solutions for cellular coverage and capacity distribution. Our Systems are suitable for both indoor and outdoor coverage, including challenging environments such as tunnels, undergrounds, airports, convention centers, high-rise buildings and other shadow areas/hot-spots.

SIRIUS: FLEXIBLE, RELIABLE, COST EFFECTIVE COVERAGE

Stand-alone Modular Repeaters, Optical Systems as well as integrated solutions share a unique common platform: SIRIUS. SIRIUS includes a wide range of active and passive components that can be assembled in a variety of ways in order to provide easy to set-up, maintain, and upgrade products operating in the 380 to 2700MHz frequency range. The components can be used in different Systems with different functionalities to meet present needs and to allow system adaptation to changing conditions (e.g. re-sectorisation, addition of other operators or new services). Due to the easy adaptation to any band, output power and network topology, regardless of protocol or modulation, SIRIUS can solve any coverage and capacity need, assuring optimized performances and allowing low capital and operational expenditures.

SYSTEM ARCHITECTURE

Teko Telecom unique **Master Unit** is the core of SIRIUS modular design: it is a versatile modular rack-based platform that controls the whole System and, depending on its components configuration, is able to provide:

- the RF interface towards the signal source (BTS, Node B, Repeater),
- the RF interface towards Service Antennas/leaky cable,
- the optical interface towards up to 144 Remote Units.

The Master Unit components include:

**POI and TAPOI- Point of Interface and Active Point of Interface-** RF interface towards dedicated BTS/NodeB/eNode B.

**TDFE - Digital Donor Front End** - RF interface towards a Donor Antenna picking-up the signals from distant macro cell towers.

**SC4W - Splitter/Combiner** - passive module providing distribution in Multi-Operator Systems.

**TRI-SC4W - Triplexer** - passive module providing filtering in Multi-Band Systems.

**TSFE - Service Front End-** RF interface towards the Service Antenna/leaky cable. In Optical Systems the Service Front End can be used to extend coverage to the area close to the Master Unit site.

**TTR - Optical Tx/Rx Modules** - optical interface towards Remote Units.

**TTRxPTP - Master and Slave Point to Point Modules** - allow a physical separation (up to 20km) between RF Interface modules and Optical Modules, minimizing the number of fiber optics running long distances.

**TSPV - Supervision Module** - one for the management of the whole system, whichever its composition.

**TPSU - Power Supply Module** - with possible redundancy for increasing the Quality of Service (QoS) of the whole System.

The Master Unit Optical Modules are connected via fiber optics to the **Remote Units**, distributing wireless signals throughout the area to be served (extensive areas coverage/active DAS). Teko Telecom Remote Units can be installed up to 20 km from the Master Unit site.



Low Power Remote Unit      Very High/High/Medium Power Remote Unit

## MASTER UNIT FEATURES

- **High modularity and flexibility**

Due to its modular design and its transparency to protocol and modulation, SIRIUS Master Unit supports a wide range of scalable, flexible and future-proof Systems, operating in the 380 to 2700MHz frequency range, with different frequency combinations and different RF power levels (Low, Medium, High and Very High).

- **Reliability**

The redundancy of Power Supply (optional) increases the reliability of the Master Unit and the QoS of the entire system.

- **User friendliness, reliability and ease of supervision**

The Master Unit hosts a Supervision Module for the management of the whole System: the built-in web-server allows local/remote supervision via standard web browser (OMT web pages).

Alarm notification can be forwarded via SNMP trap, SMS, email or SW configurable dry contacts connected to the BTS/Node B external alarms. OMC (Operation Management Centre) proprietary software allows the management of a cluster of Systems and guarantees full integration into any NMS.

## REMOTE UNITS FEATURES

- **Compactness and flexibility**

Remote Units, compact and transparent to protocol and modulation, including TETRA, HSDPA, HSUPA, EV/DO, EV/DV, LTE, are available for:

- different bands and various band combinations in the 380 to 2700MHz frequency range;
- different power classes (Low, Medium, High and Very High);
- various network structures (e.g. star-configuration or cascade configuration).

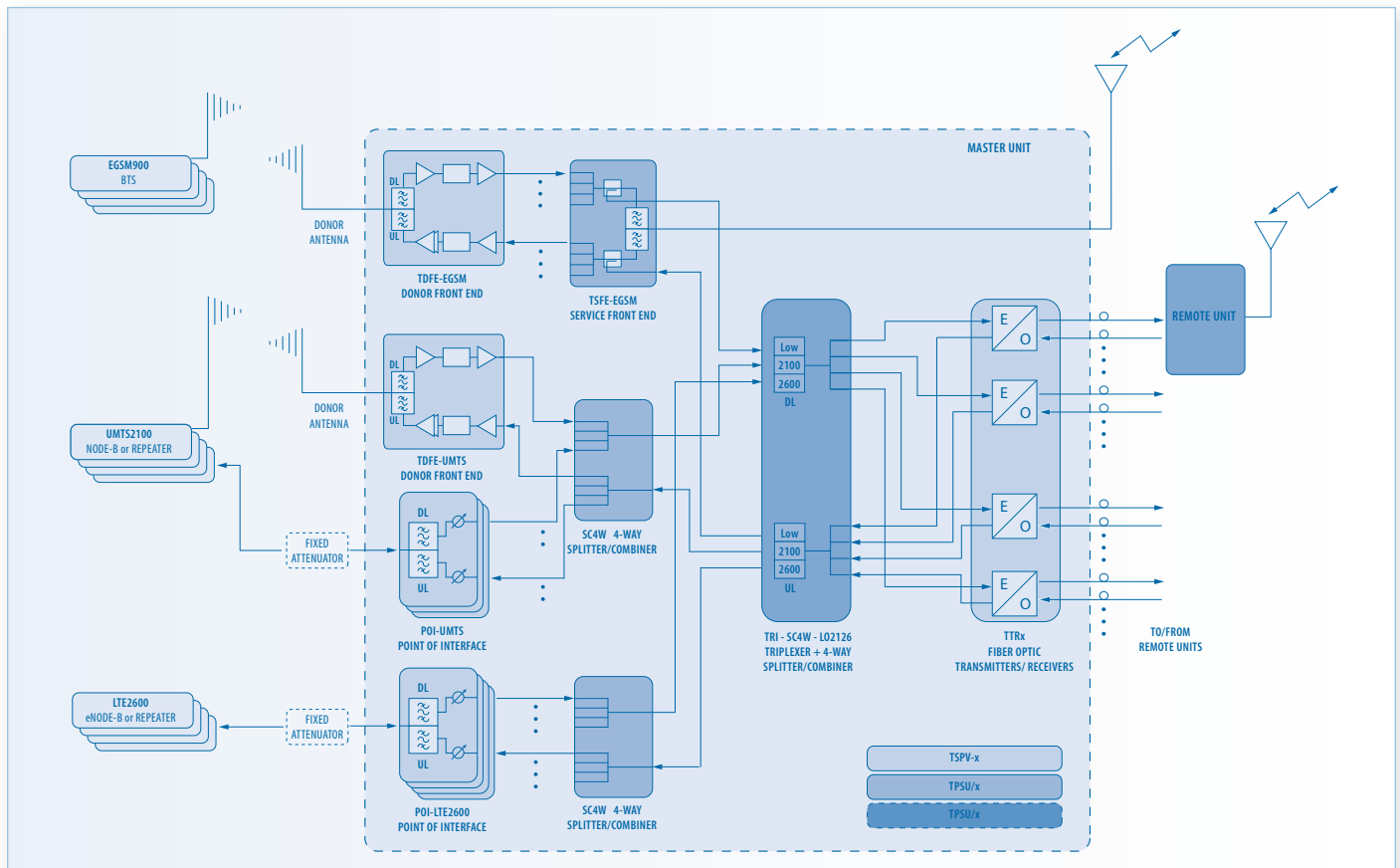
- **High quality of service**

- The Automatic Level Control (ALC) in the Uplink path is independent for each band
- Feedforward Power Amplifiers are expressly designed for IMD reduction over the entire bandwidth

- **Ease of installation and supervision**

- No field adjustments are required: the Automatic Gain Control (AGC) on the optical link with the Master Unit, guarantees constant gain independently from optical losses.
- Set-up and supervision is performed via standard web browser (OMT web pages).

## COVERAGE SYSTEM BLOCK DIAGRAM - EXAMPLE

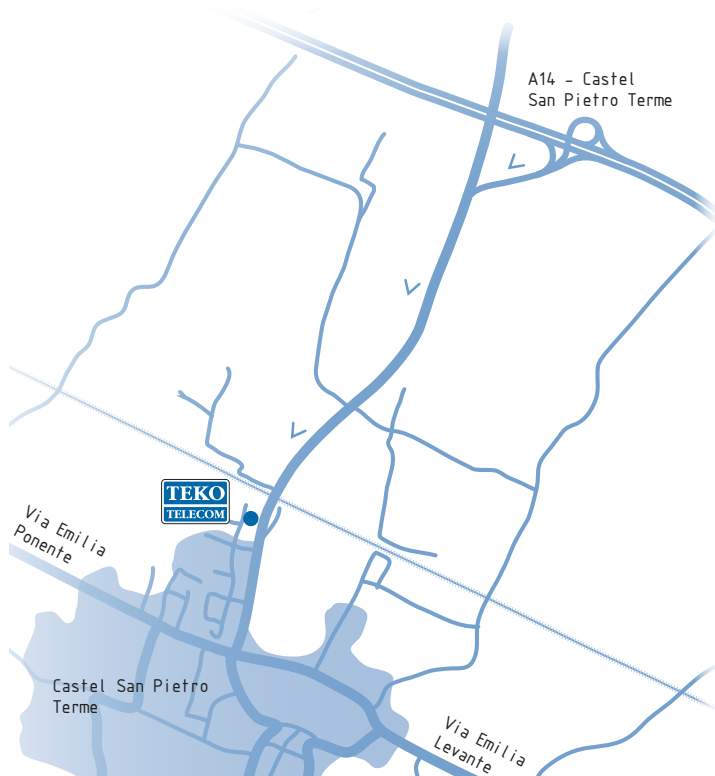


**Teko Telecom SpA** is a **MetaSystem Group** Company specialized in the design and production of mobile telecommunications network devices. We aim to offer our Clients high-quality top-performance turn-key solutions efficiently supervising all project phases: design, production, testing and installation.

Teko Telecom products are ITU, ETSI and FCC compliant; therefore they offer guaranteed reliability and safety.

Teko Telecom is located in Castel San Pietro Terme, about 20 Km from the city of Bologna (Northern Italy), which can be reached by train (High-Speed Train Station) and by plane (Guglielmo Marconi International Airport).

By car, Teko Telecom can be reached by exiting the A14 motorway at Castel San Pietro Terme (about 200 Km from the South of Milan and 400 Km from the North of Rome).



Integrated Quality/Environment Management System



ISO 9001:2008 ISO 14001:2004 certification

**Teko Telecom S.p.A.**

Via Meucci 24/a

40024 Castel San Pietro Terme (BO) - Italy

Tel. +39 051 6946811 - Fax +39 051 948473

info@tekotelecom.it

