

COMFLEX DAS SOLUTION

Award-winning
Multi technology
Higher capacity



Comba

The need for a distributed antenna system (DAS)

As data traffic continues to grow rapidly, an effective DAS solution is essential to urban commuters' smartphone use, particularly in large venues and busy transports.



Comba's ComFlex DAS solution is a point-to-multipoint distributed antenna system that provides effective coverage enhancement. It offers service providers an optimal solution for multiple applications from a single building to a campus, mega mall, or sports arena and beyond.



This is also the best wireless technology option for tunnels and fast-moving trains.

The award-winning DAS solution with flexibility in coverage & capacity

Comba's ComFlex solution won the **Technological Achievement Grand Award** at the 2016 Hong Kong Awards for Industries. This winning solution is structured with modular design to support multiple operators and multiple technologies on all commonly deployed EUTRA bands in the global market.



ComFlex DAS has been deployed for metros, stadiums, hospitals, resorts in different global areas



2014 Brazil World Soccer Games

2016 Brazil Summer Games



2014 Sochi Winter Games



Major international airports

Hong Kong MTR South Island Line



Eurasia Tunnel

Grand Hyatt Hotel, Rio de Janeiro



ComFlex DAS ensures stable connectivity for EurAsia Tunnel

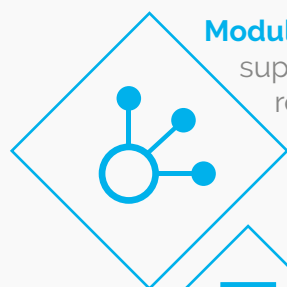
The EurAsia Tunnel is a 5.4km double-decked tunnel connecting Kazlıçeşme from the European part of Istanbul to Göztepe, the Asian part via a 14.6km route, crossing the seabed beneath the Bosphorus strait. The DAS solution manages multi-operator and multi-technology network that supports GSM, UMTS, LTE systems by supplying ACU, OCU, RUs to boost coverage and support seamless user experience.



Comprehensive multi-band, multi-system Wireless networks with high capacity

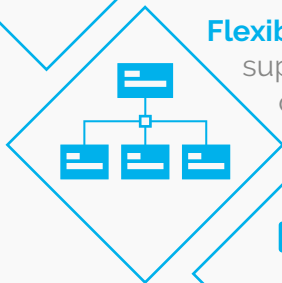
ComFlex DAS is an RF over fiber solution for enhancing a wireless network by extending and adding capacity from existing cell sites to an indoor environment.

Fiber network for RF signal transport between the master unit (MU) and remote unit (RU) is able to support long distance or long coverage area as required.



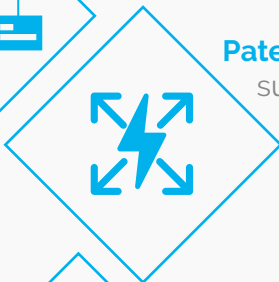
Modular Design

supports highly flexible frequency band and redundancy configuration to adapt different scenario and requirement especially in subway or railway tunnel.



Flexible System Architecture

supports daisy chain of multiple RU cluster for coverage extension.



Patented High Power Efficient and Linear Amplifier Technologies

supports multiple-technologies, multiple operators, signal amplification, as well as minimize the distortion of the original signal in high power application.



Robust Fanless Mechanical Design

endures weather extremely harsh environment.

Why
ComFlex
DAS?

Refined systems producing higher capacity with less space

Comba's modernized **Active Conditioning Unit (ACU)**, **Master Unit (MU)** and **Remote Unit (RU)** all support field upgrade and independent gain control, while web base GUI is equipped for intelligent commissioning and configuration. Both the refined ACU and MU serials are designed with full operation bandwidth system compatible with multi-operators application.

Upgraded ACU

serial supporting 8 operators duplex input from each unit



Cascades up to 4 supported to share the monitoring



Allows Optical Control Unit (OCU) expansion



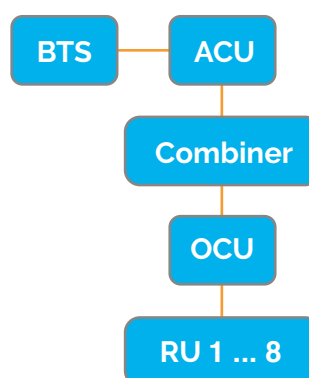
Maximum DL input power of 50dBm per RFU of ACU



RU supports PSU/PA/optical backup (conditional)

Active Conditioning Unit is best for **public facilities, multi-storey buildings**

> 20,000m²



MU serial

with RF module supporting both simplex and duplex input



Compact slim Remote Unit for OPEX saving



Supports all major technologies GSM, CDMA, WCDMA and LTE



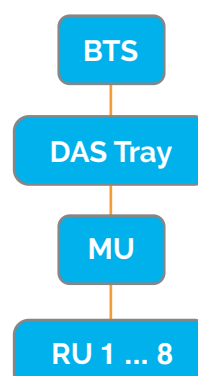
Optical link auto gain control



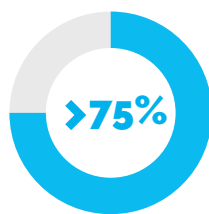
Comply with 3GPP

Master Unit is best for **small to medium sized commercial or residential buildings**

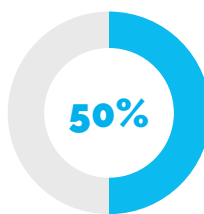
> 5,000m²



A price performance solution that creates values for present and future



space saving up to 75%

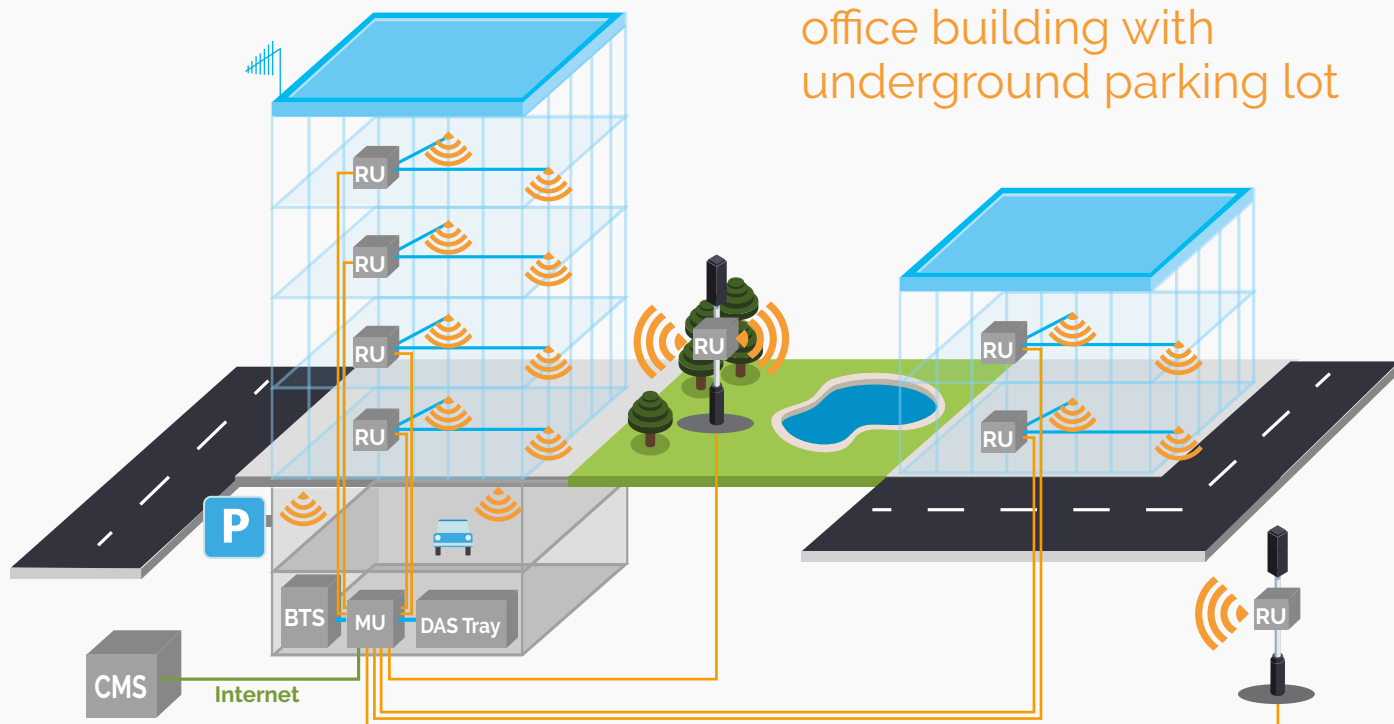


power saving up to 50%



compatible with future 5G upgrades

ComFlex DAS solution for office building with underground parking lot



ACU + Combiner + OCU

Supports

- up to 32 bands
- input power up to 100W



MU

Supports up to 8 bands

Modular RU (20W)



Integrated RU (1W/5W/40W)



Specifications

Instantaneous Bandwidth	18MHz ~ 90MHz
Supported Frequency Bands/MHz	700, 800, 850, 900, 1800, 1900, 2100, 2300, 2600, AWS

PIM to BTS	≤ -160dBc
System Delay	≤ 2 μs



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