RADIO FREQUENCY SYSTEMS

RFS

OPTIMIZER® RT
Base Station Antenna
Control System

Internet-powered
Remote Tilt™ technology

The Clear Choice in Wireless™

Optimizer® RT
Future-proof, flexible and performance PLUS

Today and into the future, effective network optimisation will prove a key determinant in the battle for cellular supremacy. Network management engineers juggle almost impossible demands for 3G-age super-optimisation against an ever-shrinking network management budget - clearly, new tools are required. The RFS Optimizer® RT Antenna Control System is that tool.

Engineered from the ground up, the RFS Optimizer® RT Antenna Control System offers complete remote tilt options to meet both today's and tomorrow's needs.

The Optimizer® RT is the Remote Tilt™ system built for the 3G cellular age, realising a flexible, scalable and high-performance 'riggerless tilt' solution. It ideally complements RFS's next generation antenna systems (the APXV series), both tailored to the demands of 3G cellular - and beyond.
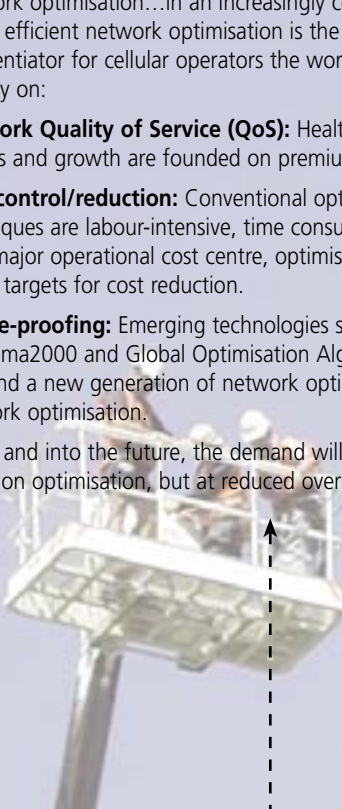
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RFS

Network optimisation…in an increasingly competitive market place, efficient network optimisation is the essential market differentiator for cellular operators the world over. It impacts directly on:

Network Quality of Service (QoS): Healthy subscription figures and growth are founded on premium QoS.

Cost control/reduction: Conventional optimisation techniques are labour-intensive, time consuming and costly. As a major operational cost centre, optimisation activities are prime targets for cost reduction.

Future-proofing: Emerging technologies such as 3G-UMTS, 3G-cdma2000 and Global Optimisation Algorithms will demand a new generation of network optimisation - real-time network optimisation.

Today and into the future, the demand will be for higher precision optimisation, but at reduced overall cost.

Conventional optimisation techniques are labour intensive, time consuming and costly!

Optimizer® RT - Remote Tilt™ technology for today… and tomorrow

Introducing the Optimizer® RT from industry leader Radio Frequency Systems (RFS).

Antenna tilt adjustment from either tower base or network management centre is now an operational reality, thanks to RFS's latest generation remote tilt technology - the Optimizer® RT Antenna Control system.

The Optimizer® RT antenna control system permits accurate antenna tilt operations to be conducted - without riggers or crane equipment - either from tower base or the network management centre. Easily interfaced with existing Network Management Software, the RFS Optimizer® RT provides the ultimate in real-time network optimisation.

Features include:

Engineered technology: A slim-line microprocessor-based technology, the Optimizer® RT has been fully engineered 'from the ground up'. It joins RFS's growing suite of 'next generation' RF cellular technologies.

IP-connectivity: Leaveraging the power of the internet the Optimizer® RT affords access to site tilt control and status from anywhere in the world…safely, securely and effectively.

Retrofittable and easy to install: The Optimizer® RT system can be used to control a complete network or selected sites and is fully retrofittable. Using RFS variable tilt antennas, the Optimizer® RT can be installed precisely when and where it is required in your network, quickly and easily.

End-to-end solution: The Optimizer® RT offers a complete solution, providing hardware, software and cabling to realise effective 'antenna-to-Network Management Centre' connectivity.

Futuristic performance: The smart Optimizer® RT features 'once only' calibration, site learn functionality and in-unit stored antenna parameters. It is suitable for both single and multi-band antennas.

Just four components make up the powerful Optimizer® RT package: Antenna Control Unit (ACU), cabling system, control and monitoring interface and user interface software.

Remote Tilt™ - Rapid payback.

Cellular antenna tilt adjustment is an increasingly expensive activity in mature 2G cellular networks the world over. Factors such as occupational health and safety manning requirements, site access difficulties and rigging equipment, and EMR antenna shutdown requirements all add to the total tilt costs.

'Real world' cellular network operating practices add to this cost: tilt delays due to poor antenna access on shared base station sites, poor information control when using subcontracting crews, and the very real cost of QoS degradation occurs as a result of optimisation delays.

Recent studies show that payback justification can be realised over just a few tilt adjustments. In a 3G-UMTS or 3G-cdma2000 cellular context - where tilt adjustment may be a more frequent occurrence - the RFS Optimizer® RT is essential.

The world's smartest Antenna Control Unit

The centrepiece of the RFS Optimizer® RT system is the Antenna Control Unit (ACU). The RFS ACU is the world's smartest antenna control unit - its advanced microprocessor-based design ensures that the Optimizer® RT provides the performance demanded for 3G cellular applications, and beyond.

Key features of the Optimizer® RT Antenna Control Unit include:

Retrofittable: The ACU is designed to be fitted to a range of existing RFS cellular panel antennas. This presents enormous benefits in system scalability and cost control.

SMART ACU technology:
The ACU provides on-site storage of all critical antenna technical parameters, calibration details and current tilt status. The unit 'learns' and stores antenna identity and positioning data during a once-only commissioning routine. Time-consuming base station record keeping or site 'experts' are a thing of the past - the expertise is retained at the site.

Once-only calibration: Unlike competing brands of remote tilt technology, the Optimizer® RT ACU never needs to be re-calibrated. The antenna is tilted quickly and accurately from one tilt setting to the next. All antenna parameters and current position status are stored on-board the ACU in non-volatile memory.

Compact and easy to fit: The ACU can be fitted to RFS panel antennas in just seconds, by simply engaging the hex drive shaft then fitting two mounting screws. Measuring only 100 x 50 x 60 mm and weighing just 320 grams, the slim-line ACU does not visually impact the site.

Ruggedised & failsafe: Failsafe design ensures a failure at any ACU will not affect operation of any other ACU on the site. With a predicted operational life span of more than 36,000 tilt adjustments, the ACU is ruggedised for long-term site use. The unit is fully compliant to IEC-68-2 environmental performance requirements, including rain, UV radiation, vibration, and temperature extremes and salt mist.
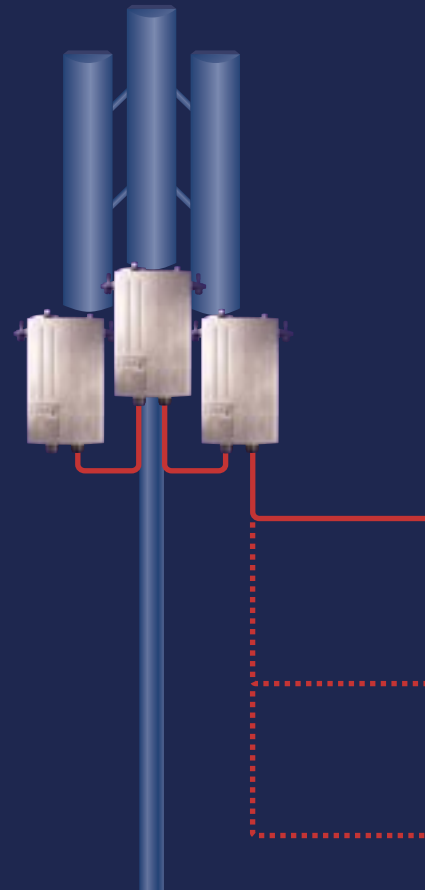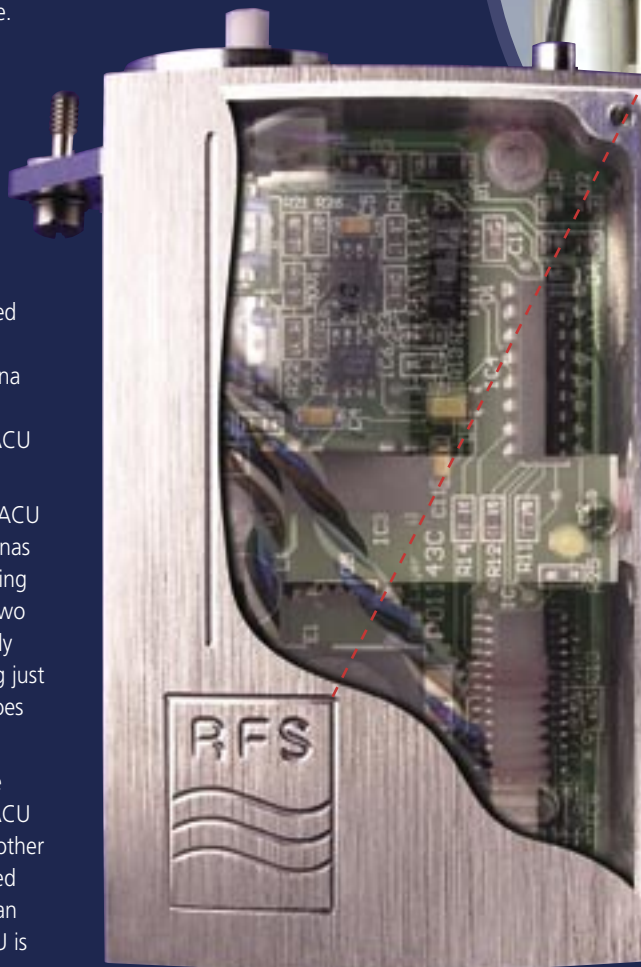
RFS is a member of the Antenna Interface Standards Group

A Window on the cell site - Optimizer® RT interface software

The Optimizer® RT comes complete with powerful Windows-based software, which provides a user-friendly 'Window on the cell site'.

Via its major screen groups - **Site Map, Device Detail, Site Log/History** - the software provides the operator with vital base station antenna configuration data and control functionality. This includes current antenna status, site configuration, tilt adjustment and a site history.

The Optimizer® RT software is designed to run either on a PC local to the base station, or on remotely located PCs at the Network Management Centre.

Features include:

- **User-friendly**
- **Site Search functionality -**
  interrogates a site and report status
- **Three-tiered password-protected security**
- **Multiple base station views -**
  Site Map, Antenna Detail and Site Log/History

Flexible site cabling systems

Cabling of the Optimizer® RT system is simple and straightforward. RFS provides a complete selection of network cable, jumper cables, ACU plug connectors and cable terminations, ensuring easy site connection.

Simple 'daisy chain' format: Base station ACUs are interconnected in simple 'daisy-chain' format. This ensures optimal cabling flexibility for the widest array of base station configurations.

Plug-in industry standard RS485: ACU interconnection is via conventional two-pair industry-standard RS485 compatible cable.

Connectivity to multiple ACUs: A single system can link up to 30 ACUs over a maximum cabling distance of 300 metres.
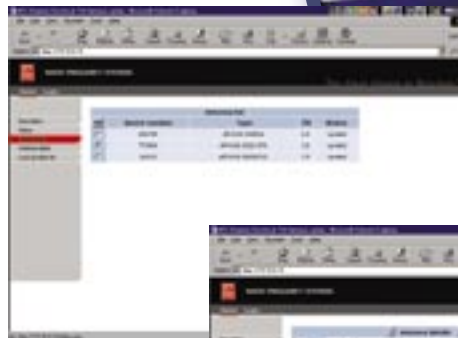
Connectivity: From base station to internet & beyond

Connectivity beyond the base station is the essential power of the Optimizer® RT. RFS provides a wide range of hardware/software options for realising both on and off-site connectivity.

Remote control via Internet: Direct connection to LAN, WAN or internet using the RFS Control Network Interface (CNI) for monitoring and control via standard internet browser.

On-site control via PC: Direct connection to a local PC via RFS's RS232/485 protocol adaptor.

Remote control via modem: Connection via a base station sited modem and protocol adaptor permits dial-up connectivity to remotely located Network Management Centre.
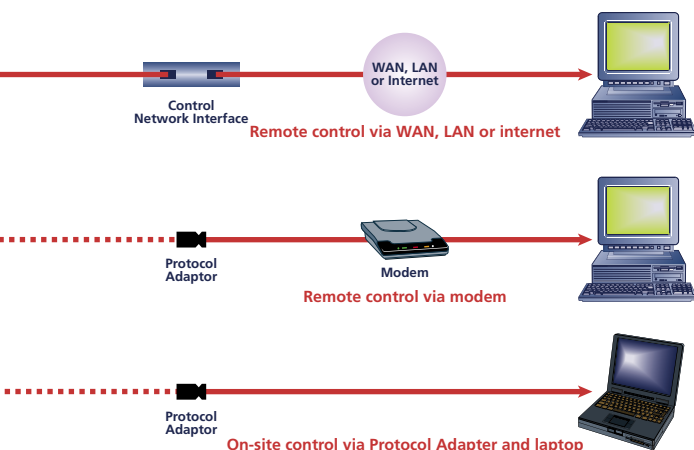
Control Network Interface

Remote control via WAN, LAN or internet

Protocol Adaptor

Modem

Remote control via modem

Protocol Adaptor

On-site control via Protocol Adapter and laptop

RFS

RADIO FREQUENCY SYSTEMS

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