

## INTRODUCTION

The fast and cost effective roll out of high capacity mobile networks in both new and traditional frequency bands is vital so operators can generate profits while meeting capacity demands. Reuse of existing infrastructure at the macro layer by a single operator is critical to the success of fast rollout of high capacity mobile networks. Sharing of the existing infrastructure by two or more operators is vital for substantial cost savings.

## CAPABILITIES

Towers, cable runs and poles in many cases are unable to support further equipment. Often there is not space for more antennas and feeder cables and even if there were, such items add significantly to the wind loading of a structure.



## PLANNING CONSTRAINTS

The process to obtain or alter planning permission is lengthy and bureaucratic. There are numerous examples of operators choosing to maintain the number of antennas on a site – this is partly driven by the physical constraints but also the time, money and effort required to alter existing planning permissions. It is far more cost effective to make use of existing feeder runs and antenna positions.

## SITE DESIGN

Macro site requirements are undergoing a revolution as engineers struggle with accommodating multiple bands, technologies and operators into a single site design. In the past operations were limited to the 900MHz and 1800MHz bands for 2G systems and the 2100MHz band for 3G systems. The landscape now looks very different with the 900MHz and 1800MHz bands also delivering 3G and LTE, 2100MHz still being utilized for 3G and the 800MHz and 2600MHz bands being added for further LTE capacity. Products that allow reuse and sharing of the infrastructure are clearly vital for the efficient roll out and operation of high capacity networks.

## TIME TO MARKET

In a highly competitive market place time to market for high capacity services is crucial. To minimize this time it is important firstly to avoid alterations to planning permissions. Secondly, it is important that any site work can be carried out quickly and efficiently. The more equipment that is shared and reused the faster any site upgrade will be, the quicker the sites can be brought on air and the rollout completed.



## **RADIO DESIGN**

Award-winning, market-leaders in the provision of wireless infrastructure sharing solutions and RF filter systems. Radio Design's pioneering team offers OEMs, operators and infrastructure companies the easiest, fastest and lowest-cost ways to roll out their networks.

## **RADIO DESIGN'S SAME BAND COMBINERS**

Radio Design's market leading combiners are used for operator sharing, technology sharing and capacity upgrades in all bands. Technical advances allow combining of adjacent spectrum blocks. All combiners are passive units, are low loss in both Rx and Tx paths and have configurable DC/AISG bypasses.

## **RADIO DESIGN'S CROSS BAND COMBINERS**

Radio Design's diplexers, triplexers and quadplexers allow feeder and antenna sharing. Used in conjunction with Radio Design's range of multiband TMAs sites can quickly and easily be expanded for additional bands, technologies and operators while keeping feeder and antenna count down and thus minimizing total cost of ownership.

## **RADIO DESIGN'S TOWER MOUNTED AMPLIFIERS**

Radio Design's single band and multi band TMAs have world leading performance and size. Due to their innovative design the multiband TMAs are similar in size to traditional single band TMAs. All TMAs are auto configure for either Current Window Alarm or AISG 2.0 operation.

## **RADIO DESIGN'S ANCILLARY PRODUCTS**

Radio Design offer a wide range of ancillary products including Power Distribution Units (PDUs), bias-Ts, smart bias-Ts, interference mitigation filters and blocking filters. The interference mitigation products overcome problems associated with co-existence of FDD and TDD systems, of multiple unsynchronized TDD systems and of LTE800 and digital television reception.

## **CONTACTS**

Eric Hawthorn, Managing Director, [eric.hawthorn@radiodesign.eu](mailto:eric.hawthorn@radiodesign.eu), +44 (0) 7785 737277

Anthony Chadwick, Sales Director, [anthony.chadwick@radiodesign.eu](mailto:anthony.chadwick@radiodesign.eu), +44 (0) 7791 580015

Martin Gostling, Technical Director, [martin.gostling@radiodesign.eu](mailto:martin.gostling@radiodesign.eu), +44 (0) 7791 780405

