

TRACKS

News from Trackwise – The RF PCB Innovator

Autumn 2007

WIMAX ORDERS DRIVE CONTINUED EXPORT SUCCESS FOR TRACKWISE

Building upon Trackwise' achievement in rapidly growing exports – recognised in 2005 by the Queen's Award for Enterprise for International Trade – Trackwise has experienced continuing strong overseas demand for wireless infrastructure antenna products.

WiMAX infrastructure antennas are a key element of this overseas demand and after a period of supporting OEM R&D teams with the development of their WiMAX antenna range, 2007

has seen production commitments rapidly build up.

A UK-based manufacturer of PCBs can only support production programmes in China and other overseas manufacturing locations by cost-competitive, focused, expert and top quality product and service.

In order to discover the benefits of working with Trackwise please contact our technical services team who would be delighted to help you.



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New India JV to localise production of RF PCBs

Trackwise, with Epitome Components Ltd, are delighted to have announced the formation of Trackwise Epitome India, a new joint venture established to provide volume manufacturing of specialist RF PCBs for Indian-located wireless infrastructure equipment manufacturers and assemblers.

Trackwise Epitome India represents a great opportunity to bring the combined skills of two leading companies to the dynamic and

rapidly expanding market that is Indian wireless infrastructure.

Trackwise Epitome India will enhance the local supply chain by providing a local, world-class source of top quality, competitively priced product.

The RF PCB manufacturing capability is ready now at Epitome's facility in Ahmednagar, Maharashtra State, India to meet the needs of the India wireless infrastructure equipment market.



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Trackwise puts customer product quality first

Trackwise have always recognised that product quality is the key element in Customer Satisfaction.

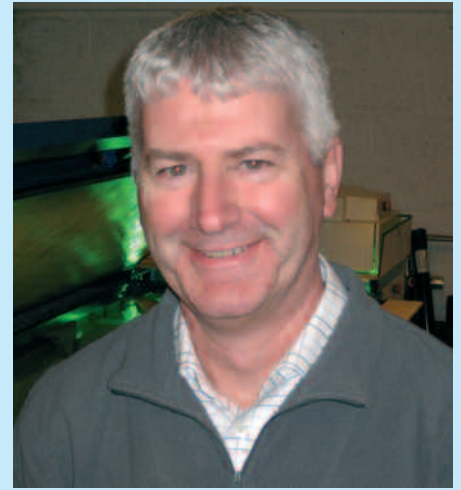
Trackwise have continued to invest in equipment, people and processes in order to ensure that we remain excellent in product quality.

Trackwise' recent acquisition of a **Camtek Orion 806 Automatic Optical Inspection (AOI) machine**

allows Trackwise to manufacture – and verify the manufacture – of high complexity, high precision circuits

where track definition and track tolerances are beyond the capability of conventional inspection.

In order further to enhance our product quality Trackwise were very pleased to secure the services of Colin Hallam a very experienced PCB manufacturer, who joined Trackwise in March 2007 to help take forward Trackwise's 'Good to Great' programme – focusing upon customer-facing metrics such as product quality and on-time-delivery, as well as other internal parameters.



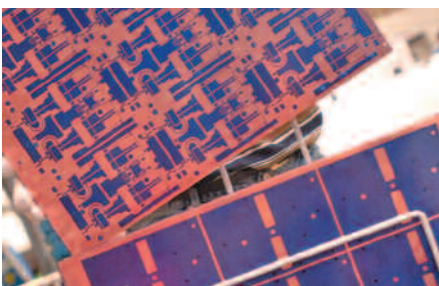
Colin Hallam

PIM update

Trackwise is proud to have participated in the Queen's University-lead investigation into mechanisms of passive intermodulation on printed transmission lines.

Queen's University are presenting their latest findings during the European Microwave Week Conference in Munich (session EuMC21-5 Weds. 10th October) – but their conclusion that good quality printed circuits manufactured on good quality microwave laminates result in PIM approaching the noise floor is encouraging news for Trackwise.

For state of the art low-PIM PCB manufacture, come to Trackwise!



What problems can we help you solve?

OptiTrack™

In one recent product upgrade, Trackwise worked closely with our customer to save over £60,000 in costs from phase 1 of the product rollout.

Any PCB manufacturer can build-to-print but due to our long experience – Trackwise have been manufacturing antenna and RF PCBs since 1995 – and excellent knowledge of the microwave and RF substrates market, Trackwise are quickly able to identify real cost-saving opportunities.

In order to offer the benefit of this experience to the wider market, Trackwise have launched a design optimisation service – **OptiTrack™** – which makes available the skills and experience of our technical services team and encourages an early-stage dialogue regardless of where final manufacture is to be made.

To discuss the benefits of early-stage dialogue with our technical services team and/or to book an **OptiTrack™** design optimisation programme please contact Conrad Bailey our Technical Services Manager.



Conrad Bailey
Technical Services Manager

July floods – What a b/summer

On behalf of the British people, Trackwise would like to apologise to all of the overseas visitors who came to the UK during the summer of 2007. We would like to say that it isn't always like this!

After a very poor first half of July extremely heavy rain fell and Trackwise was located at the approximate centre of this deluge - which reached its peak on Friday 20th when a local weather station recorded 4.75" (121mm) of rainfall on the day.

This very heavy rain resulted in widespread flooding and Trackwise suffered two incursions, the first to a depth of 18" (450mm) throughout the factory.

The reassuring words 'unforeseen event' meant that insurance policies

kicked in and some exceptionally hard work meant that our core production capability was back up and running within a few days and is now back to full capability and capacity.

Trackwise would like to acknowledge and thank our colleagues and suppliers who put themselves out to assist Trackwise at their time of need: ACS, Cirgraphics, Lyncolec and Technics deserve particular mention.

Trackwise would also like to thank our customers for their support and



understanding for any disruption to 'normal service' during this difficult period and would like to reiterate that we are now back to full capability and capacity.

Recycled PTFE laminate becomes closer to reality



Xhoutian (Sky) Xi

REEE NOT WEEE™

Trackwise are very pleased to have welcomed Xhoutian (Sky) Xi who joined Trackwise in January 2007 to take forward Trackwise's plans to develop a recycled PTFE laminate – REETrack®.

Employed under the UK DTI Knowledge Transfer Partnership (KTP) scheme – Sky – who is academically supported by Exeter University while

working at Trackwise – comes from Loughborough University where he has recently completed an MSc in Polymer Technology.

International Patent Application WO 2006/056778 applies to a process where end of life antennas, as well as PCB and laminate manufacturing waste is reprocessed to form fresh laminate from which the next generation of high performance printed antennas can be made.

This innovation produces a virtuous circle – where Trackwise, as well as our customers and our suppliers, can meet their legal and moral obligations as a responsible manufacturer, and subsidise the next generation of product through reuse of this scarce and valuable raw material.

Trackwise are pleased to advise that proof-of-concept samples have



**I WANT YOUR
END OF LIFE
ANTENNAS**
End of life base station antennas.
e.g. GSM 900

been manufactured and subjected to rigorous process testing – with very positive results.

Trackwise hope and expect to bring the product to market in 2008 and would be delighted to receive expressions of interest from antenna manufacturers interested in using this recycled product – particularly from those who are able to offer a 'new for old' part exchange.

Trackwise – developing international markets for specialist PCBs

Trackwise, formed in 1989, specialises in the manufacture of antennas using printed circuit technology – including very large (up to 2.8m) boards used as the radiating element in cellphone base station antennas.

The company exports to antenna manufacturers around the world, including the USA, Australia, Europe, China and Thailand, with China recently joining the customer portfolio.

At Trackwise, we specialise in leading-edge PCB manufacture.

Over the past few years we have invested extensively in manufacturing technology dedicated to the production – to a very high degree of precision – of the very large high-frequency printed circuit boards used as antennas in the cellphone base stations run by mobile phone operators.

Our antenna PCBs range from very small chip-sized terminal antennas for PCMCIA cards etc through patch and panel versions for applications such as WiFi and WIMAX to the largest GSM base station antenna

or FSS (frequency selective surface). The boards are based on PTFE, FR4 and flexible substrates.

Trackwise has patented a number of innovations for the antenna community, including a low-friction surface finish for the sliding element of variable tilt UMTS antennas.

The skills acquired in manufacturing antenna PCBs have brought success for the company in other RF and microwave industry sectors, such as security systems, broadcast and vehicle telematics.

TrackSlip® – Trackwise' patented solution for the sliding interface of VET antennas is being used by a growing number of our domestic and international customers, testament to its effectiveness in high performance, high reliability antenna systems.

TrackSlip®, is a very thin layer that is:

- electrically resistive
- thin (c.15micron)
- low loss (RF transparent)
- hard wearing (one customer has performed over 1 million reversals of a sliding interface with no loss in performance)
- low cost – both in terms of raw material and ease of application
- low friction
- compatible with all PCB materials

TrackSlip®, the ideal solution for the sliding interface of VET antenna phase shifters.

TrackSlip®

Upgraded Quality Approvals

Trackwise have successfully upgraded their Environmental Management System to the ISO 14001-2004 standard and their Quality Management System has been revalidated to ISO9001-2000.

The independent auditor – approving the ISO14001-2004 – stated that it was 'an excellent audit'.

This is independent recognition of the importance of the environment to Trackwise and to the hard work put in by the Environmental Management team, especially Mike Prosser and Conrad Bailey.



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