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Video enabled  Issue 161

September 2011



WHITE SPACE SPECIAL FOCUS: PART 2

THIS ISSUE

A FUTURE WITH WHITE SPACE
WHITE SPACE: REVISITED
WORLDWIDE RADIO APPROVALS
- THE IMPORTANCE OF STAYING INFORMED

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anything good on tv?

Despite an endless selection of channels, the answer to the above is generally – no.

That is changing. As the delivery mechanism for our tele-visual feast transposes from analogue to digital, the original spectrum allocated to this task is freed up. Suddenly, 150MHz of high-quality, license free spectrum is available for other purposes. I am, of course, talking about what is now known as white space.

Whether this space is used to ease rural broadband problems, or as an enabler for the predicted billions of machine to machine (m2m) communications, or for media content and delivery, and whether the technology is to be called ‘super Wi-Fi’ or something that better serves this completely different technology, there is no doubt that white space is to become part of our wireless lives.

I believe so, and six months after our first white space special focus, we pick up the baton again, and see how things have been developing.

And all of this increasing use of radio technology brings with it an additional requirement – some would say burden – to stay within national and international certification and approval standards. In this issue, TRaC’s Mike Gaukroger provides guidelines as to how to avoid pitfalls, and to save time and money.

Vince Holton

Publisher & editor-in-chief, Incisor / IncisorTV

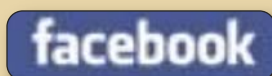
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EDITORIAL CONTACTS

INCISOR IS PRODUCED/DISTRIBUTED BY:

Click I.T. Limited
www.incisor.tv
Hampshire Gate, Langley, Rake
Hampshire GU33 7JR, England
Tel: +44 (0)1730 895614

CONTACT DETAILS:

Publisher/Editor-in-chief:
Vince Holton · vholton@incisor.tv
Telephone: +44 (0)1730 895614

Sales & Business Development:
All enquiries – sales@incisor.tv
Telephone: +44 1730 895614

Contributing writers:
Rebecca Russell, Manek Dubash,
Dean Anthony Gratton
Paul Rasmussen, Mads Oelholm.

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“The Bluetooth program got started about fifteen years ago. It is now possible to look back and see that Incisor/Vince was one of the key things that made it happen. Incisor magazine and Vince’s presence were felt soon after the public launch. This was not planned - we weren’t sure what to make of it? The magazine was good, it was accurate, was not afraid to ask the hard questions, and also promoted what we believed to be the value of the technology. We had planned an industry targeted journal. Incisor was better, it came from the community. I believe that the community got to trust the good journalism and appreciate the bias towards the end user and developer community. For the Bluetooth program, it provided a vehicle to communicate without corporate spin and it kept us honest in our actions.”

Simon Ellis
Former Chair of Bluetooth SIG marketing / Bluetooth SIG Hall of Fame
Principal Engineer, Intel Corporation

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Bluetooth to finally hit '2 billion devices in a year' target?

Research company In-Stat is forecasting continued success for Bluetooth technology, with expected Bluetooth-enabled device shipments to exceed 2 billion in 2013. Regular Incisor readers will know that this was a number that back in 2009 the Bluetooth SIG predicted that it would hit in 2010, so it will have taken a little while longer than planned.

Brian O'Rourke, Research Director at In-Stat told Incisor, "Bluetooth continues to gain design wins over a wide range of applications, with Bluetooth device shipments increasing by 23% between 2009 and 2010. Bluetooth has been bolstered in the past year by the emergence of two new standards. Bluetooth 3.0 + High Speed (HS) combines classic Bluetooth and Wi-Fi to transmit large data files and Bluetooth 4.0, which offers much lower power consumption than classic Bluetooth and targets medical and fitness devices, as well as PCs and mobile phones."

In-Stat made a number of other observations:

- Classic Bluetooth will remain the leading BT interface throughout the forecast period.
- Bluetooth 3.0 + High Speed is a software-only solution that allows Bluetooth and Wi-Fi to work together.
- Bluetooth 4.0 primarily targets new BT markets: medical, fitness, and security devices.
- Bluetooth 4.0 + High Speed option expected to hit the market in mobile phones by the end of 2011.
- Automotive BT now common option in mid-priced sedans.

So, will that '2 billion devices in one year' target be hit? How close have things been recently? Perhaps somebody from the Bluetooth SIG wants to comment?

Standards bodies push Wi-Fi Direct and BLE Protocols, not NFC

Connectivity protocols in mobile devices and consumer electronics are finding new growth through evolving standards. Two key short-range communication protocols, Wi-Fi Direct and Bluetooth v4.0 (or Bluetooth Low Energy, BLE) are benefitting from the activities of the Bluetooth SIG and the Wi-Fi Alliance, says ABI Research.

These groups' goal: to simplify and standardize device implementation for OEMs, beefing up the protocols' capabilities and pushing them into new devices and vertical applications. They provide a way for CE OEMs' priorities to be factored into these competing (yet complementary) protocols.

BLE is expected to ride alongside the massive adoption of earlier versions in handsets and other devices. The low power sensors can be added to health and fitness monitoring devices and deliver a new addressable market for Bluetooth to serve.

Wi-Fi Direct offers P2P communication capabilities similar to Bluetooth's. As Wi-Fi continues to penetrate into all manner of devices and consumer electronics, ABI suggests that there is potential for Wi-Fi Direct to replace Bluetooth in certain device segments (eg. remote controls, Bluetooth headsets).

According to ABI forecasts, Wi-Fi Direct device shipments will experience a 50% CAGR from 2011 to 2016 and ship in 2 billion devices in 2016. Not to be outdone, total BLE device shipments (both dual and single mode) will grow at a 61% CAGR to ship 2.9 billion devices in 2016.

Vice President Kevin Burden pointed to a prominent exception: "Another short-range technology, NFC's 'mobile wallet' function, is not benefitting from an industry body's drive

to standards: the NFC Forum takes the position that the marketplace is the best arena for that process."

...and WMDs to top 100 million. Eh?

Hah! Had you wondering about our change of editorial direction there, didn't we? No, we're not talking about weapons of mass disruption, we are talking about those less harmful WMDs – wearable medical devices.

ABI Research also told Incisor that the market for wearable devices will reach more than 100 million units annually by 2016 as a range of factors combine over the next five years to drive consumer and healthcare adoption. These devices, ranging from heart rate monitors for measuring an individual's performance during sports to wearable blood glucose meters, will all enable greater detail in tracking, monitoring, and care – often through connections provided by mobile phones.

Ultra-low power wireless technologies such as single mode Bluetooth 4.0, existing proprietary, and the planned 802.15.6 specifications are combining, says ABI, with mobile handsets and social networking application capabilities to drive adoption of a new generation of body-worn sensors. These sensors have the capability of automating details on an individual's activities to inform friends and drive advice and feedback.

Jonathan Collins, principal analyst, wireless healthcare and M2M at ABI told us: "A number of short range wireless protocols are jostling for position in this emerging market and they line up against traditional tethered connectivity such as a USB cable to a computer as well as emerging M2M offerings."

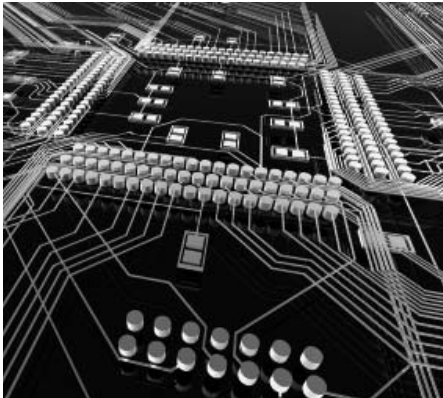
news

INCISOR TV Video presentations

When it comes to assessing what is really going on in the market, there is no substitute for seeing products in action and hearing 100% accurate information from the people at the sharp end. Incisor TV provides that insight.

Click on the links below to watch recent Incisor TV presentations

- [Neul whitespace launch event](#)
- [Bluetooth SIG All Hands, Mike Foley keynote](#)
- [Bluetooth SIG AHM, Bluetooth Ecosystem teams](#)
- [Bluetooth SIG AHM, Board of Directors panel](#)
- [IncisorTV at CES 2011 – Bluetooth Best of CES](#)
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- [Rococo discusses LocalSocial](#)
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- [Bluetooth SIG BETS programme](#)
- [Frontline – BPA500 protocol analyser](#)
- [Aftermarket Bluetooth versus Factory fit](#)
- [Who needs stress? Says Jabra](#)
- [EnOcean Alliance – energy harvesting technology](#)
- [Aftermarket Bluetooth versus factory fit](#)
- [Bluetooth 2010 All Hands Meeting](#)
- [Anoto - 10 years of digital pen and paper](#)
- [BiteBack Sweden](#)
- [CES 2010 Daily Show report – Day 1](#)
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- [A guide to Bluetooth Version 2.1 + EDR](#)
- [10 years of Bluetooth / Best Bluetooth of CES 2008](#)



Combination IC shipments aim high, thanks to Wi-Fi

Wireless combination IC shipments are forecast to grow by almost 24% in 2011, according to IMS Research's latest report The World Market for Wireless Combination ICs - 2011.

The vast majority of the growth is due to just two applications, smartphones and tablet PCs; and one particular combination IC, Bluetooth/FM/WLAN.

Historically, the vast majority of combination ICs shipped has featured Bluetooth and FM technologies, with this specific combination being incredibly successful in cellular handsets. However, with the rapid growth of the smartphone sector in recent years, thanks largely to Apple's iPhone and handsets using Google's Android OS, inclusion of Wi-Fi technology has become almost essential. This is evidenced by the WLAN attach rate in smartphones rocketing from 56% in 2009, to a projected 93% in 2011.

Heath Lockett, connectivity market analyst at IMS Research told Incisor, "The success of the smartphone and tablet PC sectors is really pushing forward the market for combination ICs, which are now found in a wide range of consumer devices, from the Motorola Atrix to the Apple iPad2, and Sony PS3. The number of devices shipping with a Bluetooth/FM/WLAN combination is forecast to increase by 62% in 2011, and by 2012 Bluetooth/FM/WLAN ICs will overtake shipments of Bluetooth/FM chips, highlighting just how important a part of our lives Wi-Fi has become."

IMS forecasts that the continued growth of IC shipments will see total combination IC revenues rise from \$2.5 billion in 2010 to almost \$7 billion in 2016; an aggregate growth rate of 18%.

As the combination IC market has matured, price and product size has reduced, while an

increasing array of wireless technologies is now offered. "Short of any future mass integration of Bluetooth or WLAN into the baseband, combination ICs are here to stay", said Lockett. "With Blackberry's Playbook now being the first consumer electronics device to use a Bluetooth/FM/WLAN/GPS combination, the technology is really moving on. The next step will be to squeeze NFC on board as well."

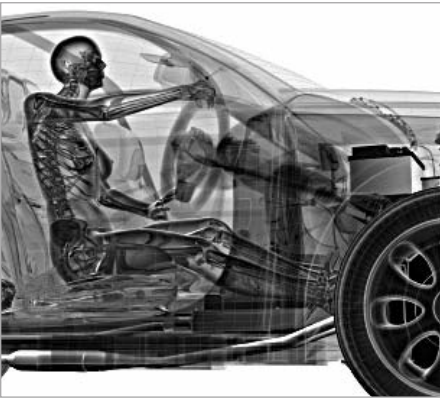
Audio Precision implements aptX codec on Bluetooth test kit

Audio Precision, which is an audio test company, has reached a multi-year licensing agreement with CSR, the owner of the aptX audio codec. The deal allows AP to add the aptX codec to its recently launched Bluetooth wireless technology test option for the APx family of audio analyzers. The APx Bluetooth option now supports A2DP, HFP, HSP, and AVRCP profiles and aptX, SBC and CVSD codecs.

"Systematic test is the key to good design, and AP is constantly adding the features and technologies our customers need to test their designs systematically," Tom Williams, Audio Precision's VP of Marketing told Incisor. "For our customers designing Bluetooth devices, that means an analyzer with an integrated Bluetooth radio and native support of codecs. Many of our customers are aptX licensees, so it just makes sense to add aptX to our Bluetooth option."

AP claims that via the Bluetooth option, an APx audio analyser can run over 30 acoustic and electronic tests in seconds. "Even switching between the codecs you wish to test is simple and fast," adds Tom Williams.

Audio Precision's APx Bluetooth option with aptX is available now.



Ubisense opens door to Chinese manufacturing with UWB product certification

Ubisense's Series 7000 real-time location system (RTLS) industrial tags and sensors have been certified for use in China by the country's stringent regulatory authorities.

Ubisense told Incisor that its ultrawideband (UWB)-based RTLS is the first to gain official authorisation for deployment and use within China. Ubisense has already gained product certifications in the USA, Europe, Canada, Korea and Singapore.

Many world famous brands apparently rely on Ubisense systems to gain real-time visibility of assets passing through production. One sector where Ubisense has been especially successful is the automotive industry, where car manufacturers use them to achieve significant efficiency, throughput and quality improvements in assembly line operations.

With its new certification in place, Ubisense says that it plans to break into the lucrative Chinese automotive market. In July, the Chinese Association of Automotive Manufacturers (CAAM) announced that the country's automobile industry produced more than nine million passenger cars and commercial vehicles in the first six months of 2011. By the end of the year, Scotia Economics estimates that Chinese assemblies will have risen to 21 million units – representing 28% of overall global vehicle output, and meaning China will surpass Europe as the world's largest vehicle producer.

Andy Ward, Chief Technology Officer at Ubisense, told Incisor, "Coming so quickly after our public offering, this development provides further evidence of our position at the forefront of global RTLS developments.

With approval of our technology in place, we are now ideally positioned to tap into China's extensive manufacturing sector. Production of the magnitude that occurs in China is increasingly dependent on systems that can eliminate time-consuming, manual identification tasks. Our technology does this, but also adds another layer of intelligence to fast-paced manufacturing environments, where it can generate alerts when there is a deviation from plan, and log activity so manufacturers can scrutinize performance and achieve new efficiencies. This is proving to be an incredibly exciting year for Ubisense and we look forward to the adoption of our technology across China."

Ubisense's first automotive project in China is due to commence in Q3 2011, with delivery expected to be complete by the end of the year.

Nordic and Broadcom do Bluetooth LE proximity fob

Nordic Semiconductor has completed wireless communication tests between a prototype design for a small, low-cost Bluetooth low energy proximity fob and Broadcom's BCM4330, the combo chip solution certified to the Bluetooth 4.0 standard.

The prototype fob design demonstrates the interoperability between Bluetooth low energy chips and Bluetooth v4.0 devices. The recently released Bluetooth v4.0 Proximity Profile enables the communication between the fob and next generation host devices like laptops (using the Broadcom BCM20702) and mobile phones (using the BCM4330).

Nordic told Incisor that the fob is designed to prevent a device such as a laptop being accessed in the owner's absence. After 'pairing' with the chip in the mobile device, the user carries the fob on their person. If the

distance between the user and the mobile device exceeds a pre-set threshold (as may occur, for example if the mobile device is left behind or stolen), the pairing is broken and the mobile device automatically locks.

This is being pitched as new, but regular Incisor readers will remember seeing a similar solution that was demonstrated by Schneider and BlueGiga at CES in January this year – [see the Incisor.TV movie here](#) – clip at 02:27).

The fob is based on a Nordic µBlue nRF8001 single chip Bluetooth low energy solution expected to be ready for volume production from early third quarter of this year.

CSR licenses aptX audio codec to Nokia

CSR has signed a multi-year licensing agreement with Nokia to enable the handset company to incorporate the aptX audio compression technology that CSR bought from Irish company APT Licensing. Nokia expects to introduce a range of new Bluetooth audio accessories in the fourth quarter of this year that incorporate the aptX codec.

"By incorporating aptX technology into our audio products, we are enabling the audio experience to be nothing less than inspirational," Hans Henrik Lund, Global Head for Nokia Accessories at Nokia told Incisor.

Although standard Bluetooth technology offers the ability to stream stereo audio wirelessly from handsets and other audio devices to headphones and speakers, the bandwidth-constrained audio does not come close to what consumers have come to expect from their electronic entertainment systems. The aptX audio coding technology solves this problem by breaking the bandwidth barrier.

new products



foxL Bluetooth speaker takes to the road

Incisor featured the foxL Bluetooth speaker from Soundmatters several months ago, and here it is again, as, for those that want to take the wireless portable speaker on the road there is a new foxL Vehicle Bracket Mounting System and foxL Universal Bicycle Mount. The new mounts, which were designed by ProClip, a mounting system specialist, mean that you can use the foxL's wireless speakerphone for answering calls, or listen to tunes while driving or bicycling.

The mounts were designed to fit all foxL and foxLv2 speaker models and feature custom mounted swivel brackets that fit, Soundmatters suggests, virtually any car model and year, with a variety of mounting locations available in each car. They are claimed to mount in about 2 minutes with no cutting required. The Universal Bicycle Mount works with any bicycle and is weatherproof.

"When TIME magazine named foxL a Top 10 Gadget of the Year, they applauded its on-road application and we've since had lots and lots of customers ask us about using their foxL in their vehicles and for biking, both for music AND as a speakerphone. We couldn't really talk up the benefits until now," Lee Adams, Vice President, Soundmatters told Incisor. "The folks at ProClip

have now provided us a really nice bracket and mounting system. And for bikes, we're bundling their foxL bracket with a really nice bike mount."

Priced at approximately \$65 for the foxL Vehicle Bracket Mounting System and \$49.95 for the foxL Universal Bicycle Mount, the mounting products are available immediately. And if you don't have your foxLv2 Bluetooth hi-fi speaker yet, it is sold separately, priced at \$199.

Unlike last month's review of the Jambox from Jawbone, Incisor hasn't been able to test the foxL speaker, as Soundmatters' PR people told us they can't ship review samples to the UK.

Sigh.....

Clarion reveals Parrot

Car audio company Clarion's latest in-car multimedia source features a 6.2" motorised flip-out screen, and its sister, the double-DIN sized NX501E receiver with integral 7" screen, support AM/FM radio, CD, DVD, MP3, AAC and WMA playback. TeleAtlas based SatNav is also provided, and (this is where it becomes interesting for Incisor) connectivity for your iPod or iPhone and Bluetooth hands-free calling and audio streaming via Parrot technology.

Clarion told Incisor that the products' real appeal to a technology savvy consumer is its ease of

use and ability to take mobile entertainment sources on the road, which is reflected in Clarion's commitment to develop its interactive GUI (Graphical User Interface). Animated icons work with a rotary control on the NX501E while the NZ501E shares the same on-screen icons alongside function buttons on the unit's fascia. In both systems, Flick Operation – common place in mobile phone and online magazine technology – allows the user to scroll through menus, while icons can be highlighted and dragged to alternative positions for a more customised appearance and set-up.

This is the first time that Clarion has incorporated a Parrot Bluetooth module within its multimedia products, to facilitate hands-free communication via a built-in or optional stand-alone microphone, as well as wireless A2DP audio streaming via supported devices.

Parrot has long been a supplier to the OEM car industry, and sells its products under its own name too, but it's a compliment to the French company that its brand is now being name-checked by a major Japanese in-car infotainment manufacturer. It's a bit like 'Intel inside' or – closer to our own back yard – the way that various CE vendors push the fact that their audio is boosted by having the apt-x audio codec (apt-x was developed by APT Licensing, and the technology was bought by CSR).

These two head units are available now, and are priced at RRP £899.00.

Industry leaders use **INCISOR.TV** web video

Incisor.TV creates high-quality web TV content for companies in the technology sector. Here are examples of recent Incisor.TV movies. These are now showing on the web sites of the Bluetooth Special Interest Group, and the energy harvesting technologists at the EnOcean Alliance.

Click on the images to view the movies at the Bluetooth SIG and EnOcean web sites.

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Click [here](#) to see other examples, and contact [Vince Holton](#) for more information.



Proximity

Incisor special feature: All you need to know about white space radio: Part 2



It has been six months since Incisor's first special focus piece on the emerging white space radio sector.

Since that first look, real world technology trials have started, one company has launched white space products onto the market, various companies are forming a special interest group, event companies have decided that this is a market that can be exploited, and a funky (?) new name – Super Wi-Fi has been applied to the technology.

Be in no doubt that white space is a market that you need to watch. Incisor's special focus piece brings you the latest developments.





Vince Holton

Incisor review: Part II

White space revisited

Introduction by Vince Holton

It is six months since Incisor carried out its first review of white space technology ([download here](#)), and its potential value and prospects. At the time, these words from white space pioneer Neul provided a very good synopsis:

“It took a while, but mainstream users are at last starting to embrace wireless data services. Meeting this need offers huge opportunities for the entire wireless industry. However, this is threatened by the current lack of overall capacity for wireless communications. Existing networks are struggling - not surprisingly given the unprecedented growth in demand so far, and this is just the beginning.

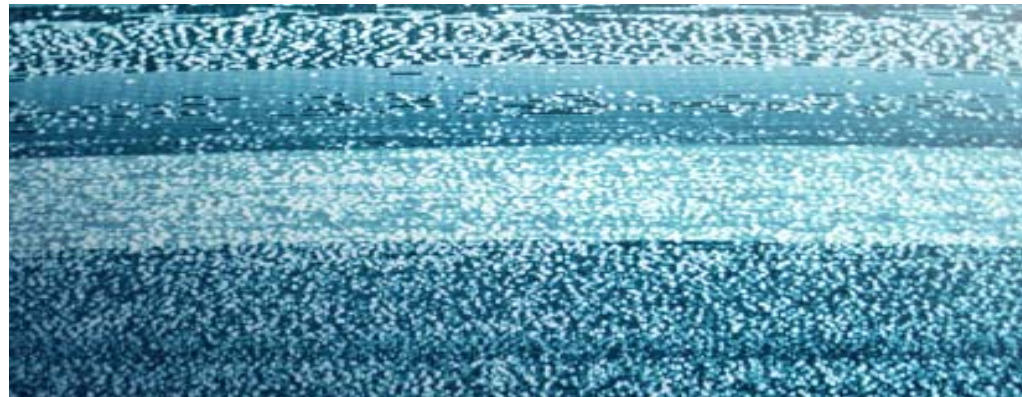
The only way to meet the new demand is to add new data carrying capacity. White Space radio does exactly this, delivering up to 150MHz of high quality new spectrum free of charge. Handled correctly this has the potential to transform the economics of many wireless applications, making existing applications cheaper and better, and enabling entirely new applications that are currently uneconomic.”

We all know that things move fast in the technology industry. If a week is a long time in politics (thanks, Mr H. Wilson, former British PM), then six months is a lifetime for the tech sector.

I firmly believe that white space has great potential and will impact us all. It was appropriate, then, to go back out into the world and find out what has been happening amongst the relevant protagonists.

News is still a little thin on the ground. During the research for this review I posted an invitation to comment on white space on five, wireless and mobile data-related discussion groups on LinkedIn – including twice on the [white space network group](#). There wasn't a single response. Hmm.... To me that says that this market is very new, and people are at the learning, rather than pontificating stage.

But, monitoring this tech sector as I have reveals that there are active players. Two



of the most ‘engaged’ are Neul, the company established by ex-CSR founders in order to exploit the white space opportunity, and Cambridge Consultants, the Incisor sponsor and one of the most successful British research and development companies of recent times. CSR was, of course, a spin-off from Cambridge Consultants, and so there is a continuing lineage here, and a pleasing demonstration of the British talent for innovation (ok, flag waving over now). Both Neul and Cambridge Consultants have contributed again to this latest Incisor white space review. We filmed Incisor.TV interviews with the two companies, and you can view them as part of this month's review.

But these two companies are not alone. In June, a consortium of companies known as the Cambridge TV White Spaces Consortium, which includes Microsoft, Nokia, BT, BSkyB, Neul, Samsung, Cambridge Consultants, Spectrum Bridge and TTP, announced a trial to test the use of white-space broadband to see how it works in towns, cities and rural areas. BT is also staging a trial on the Scottish isle of Bute.

A special interest group is also waiting in the wings. For those in the know, there is a bad pun there. The SIG will go by the name of Weightless. Incisor will bring you more news of this as things develop over the next month or so.

And there is a discernable but slightly concerning trend to call white space

technology ‘Wi-Fi on steroids’ or ‘Super Wi-Fi’. Indeed, this term was even used in a BBC radio interview with Jim Beveridge, director of International Technology Affairs at Microsoft. You can [listen to the interview here](#).

Ever eager to jump on bandwagons, event organisers have latched onto this term too, and there is a white space event taking place in Austin, Texas later this month that is branded the ‘[Super Wi-Fi Summit](#)’.

Whether you agree with the use of the term Super Wi-Fi or not – and I don't, I think that we really need a genuinely memorable name like Bluetooth that the world can latch onto – you have to acknowledge that the formation of a proper SIG, real world trials involving world leading technology companies, and event companies making commitments to establishing industry conferences, are together a pretty sure indication that we are seeing the birth of a new industry around white space.

You are not going to learn everything there is to know about white space and its potential from this second white space review. We simply weren't able to get hold of enough people to talk to. But we will persist.

White space technology has massive potential, and is here to stay. I will be making sure that the Incisor team stays close to the key companies, as I plan that we should become an information conduit to wireless interested parties around the world.



Fraser Edwards,
Cambridge
Consultants.

A future with white space

Fraser Edwards, Group Head, RF Systems,
Cambridge Consultants

Cambridge Consultants (CC) has just published its latest report on the state of the White Space industry ([access the report using this link](#)). As a company, Cambridge Consultants regularly organises exclusive events for key industry opinion leaders in new and important technologies – this event being the second that we have hosted covering White Space. The event drew together stake holders in the wireless and broadcast industries, including component manufactures, equipment manufacturers, start-ups and venture capitalists – a wide range of interested and interesting contributors. The gathering allowed participants to discuss and debate sometimes differing, sometimes complementary and sometimes concurring views, and then to draw conclusions as to which direction they thought the industry would move. It is clear from the outcome that a lot has moved forward in the last couple of years.

With one of the largest independent wireless development teams in the world, Cambridge Consultants has been a key developer of White Space, demonstrating its everyday application through the use of social media, sending the first ‘Tweet’ over White Space. At our first event, in the autumn of 2009, we had a general consensus that White Space was a compelling example of cognitive radio and that it had tremendous potential for generating new business. In addition, more efficient use of spectrum was seen as an inevitable requirement. White Space was recognised as a revolutionary method for meeting the desire for the ‘always on’ bandwidth that mobile users craved.

So what has changed in the intervening period? Some interesting conclusions unfolded. We have to remember that White Space is not in itself a technology - it cuts across a whole set of possible



RACE 001: APPLICATIONS					
1	RURAL BROADBAND	10/1	9	EMERGENCY SERVICES	100/1
2	SMART CITY	20/1	10	AD HOC COMMUNICATION	50/1
3	WIFI ON STEROIDS	5/1	11	SOCIAL NETWORKING	40/1
4	NOT YET CONCEIVED IDEA	15/1	12	SWERVEBALL IDEA	15/1
5	MACHINE TO MACHINE	8/1		BUILDING	5/1
6	LOCAL TV DELIVERY			ATIONS	30/1
7	KILLER APP NOT YET KNOWN			EM	25/1
8	THE MICRO WISP			SPECTRUM	90/1

vertical markets. Whether these are for Machine-to-Machine or broadband delivery or some new idea – it is a resource that can be the foundation of new businesses. There are new entrants producing remarkable results with a relatively low investment – the first technologies were expected to emerge initially as a set of smaller, bottom-up market opportunities. This is good in that it requires lower investment initially, but bad in that it results in a number of smaller, fragmented White Space businesses not talking with one voice. Quite a lot of the discussion centred on the need to support the so called ‘bandwidth crunch’ with ideas similar to those of existing Wi-Fi, and as an alternative to broadband. It was clear, however, that with this new availability, the spectrum has the potential to provide for a much broader range of applications. These might not only help underpin the current need for ubiquitous connectivity, but also have the potential to generate

economic growth for the country through new applications. To some extent we are only limited by our imagination, and with the creation of the new enterprise zones by the government, it is to be hoped that some of the new businesses that arise will come from the White Space arena.

It is of course difficult to pick those ideas that will be the winners. The phrase “the internet of things” is often bandied around, but what does this mean in reality? We’ve seen lots of suggestions thus far, but where do we go from here? We noted during the event there were many areas that could potentially use White Space as the underlying channel. To take one further example, there is a growing interest in telehealth and remote monitoring to deal with a population living longer, with long-term health issues. Monitoring chronic conditions, and indeed short-term health issues, remotely and continuously is one way of managing health delivery more efficiently,



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and also cutting down on the need for visits to GPs and hospitals. This is doubly advantageous since the data drawn from long-term monitoring can lead to the development of new treatments and applications of existing treatments, ultimately creating a framework for more cost-effective long-term care. In England alone it is thought that approximately fifteen million people have some kind of chronic illness – in the USA about half of the population have one or more chronic conditions. The Continua Health Alliance suggests that over 600 million people worldwide have a chronic disease. As populations – at least in the Western world – generally get older, this problem is set to become worse.

Connecting all these people needs a lot of resource. It can be done using existing short range connectivity such as Bluetooth and then on through the PSTN – there are many new products certified by the Continua Health Alliance now on the market. How much more useful though to have a system that allows for complete mobility? Consumers like to go on holiday, they like to go out for the day, they do not want to be tethered to their home connection and they still want a quality of lifestyle that is not simply centred round their home. This type of usage of White Space spectrum fits very well with the way that White Space is expected to be used. The database models that are emerging work on the basis of granting a limited frequency/time allocation given to any one user. This fits

well with a low, non-continuous need for data transfer. A continuous streaming connection with a guaranteed ‘always-on’ availability is not required for this type of application.

So if it is true that a UK nationwide network could be developed for 50 million pounds, then applications like telehealth could become a reality. There exists the potential for White Space based technologies to bring some real benefits to the man or woman in the street. Here at Cambridge Consultants we will continue to take a lead in the development of technologies that both push back the barriers and provide benefit to society as a whole.

www.cambridgeconsultants.com



Cambridge Consultants Blogs

Why are we blogging? We believe that the technology market is much better when it is highly connected, and social media is a fantastic tool that instantly connects people who face similar challenges, irrespective of whether they are budding entrepreneurs running their first high growth start up company or a captain of industry in charge of a global bluechip company. So, if you'd like to add to the debates, please feel free to comment on any of our blogs. It would be great to hear from you.

Patrick Pordage
 Marketing Communications Director
 Cambridge Consultants.

[Corporate Blog](#)

Our corporate blog covers new product development, open innovation, accelerating start up companies and other topics that involve using innovation to achieve market leadership, along with technology stories that we hope you will find interesting/

[Consumer Products Blog](#)

Topics include connected devices, beverage dispensing, eco innovation, new product introduction (NPI), open innovation, novel control interfaces and other topics related to our development of innovative consumer electronics, domestic appliances and fast moving consumer goods.

[Wireless Medical Blog](#)

Examining mobilehealth and telehealth technology ad market challenges, this blog provides insight from implantable and hospital communications to consumer health applications.

[Mobile Wireless Technology Blog](#)

Smartphones, netbooks and tablet PCs are making mobile connectivity an essential part of everyday life for many people. This blog examines the issues faced by technology professionals, network operators and industry analysts working to keep people connected on the move.

[Short Range Radar Blog](#)

Devoted to the topics surrounding short range radar systems in the 0 to 10km range. Examples of systems covered include in-wall, through wall, short range border surveillance and in-fill radar for both ATC and military applications.



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White space radio: revisited



by Dean Anthony Gratton

IF I RECALL CORRECTLY SIX MONTHS AGO I WAS SCRATCHING MY HEAD OVER THIS SUBJECT – THIS IS OFTEN A REACTION TO MY EMBARKING UPON SOMETHING NEW. IF YOU LIKE, IT'S MORE OF A REFLECTIVE RESPONSE SHADED WITH CURIOSITY, ALONG WITH A MOMENTARY THOUGHT AS TO WHERE I SHOULD BEGIN.

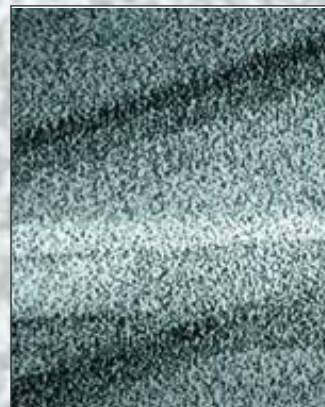
And six months ago, I speculated that white space was the new wireless buzzword and to be honest, it's certainly growing in momentum and has witnessed a lot of press lately.

White space everywhere - in the news that is!

Especially with very recent press surrounding a number of industry trials that are underway in Cambridge, UK (and Scotland and the USA) involving names such as Microsoft, Nokia, British Telecom and Neul. Oh, and there's one other additional fact that I've also gathered and

needs to be shared. Yes, I have learned that the buzzword should be written as 'white space' (two words). With all that cleared up, what's happened over the last six months that has warranted me to revisit the subject matter again so soon? I mean, in wireless industry terms some grass has to grow under your feet; moss has to form; your garden trees have to blossom and bear fruit twice, and there undoubtedly has to be some horizontal rain involved before something significant happens within the industry.

Did I just imply that the wireless industry is slow? Nah...



As usual before I begin, I need a few of my familiar treats around me. Okay, I'm allegedly in the throes of the British summer (yes, this is as good as it gets) as it's raining yet again, but not necessarily horizontally! Nevertheless, I'm sat here in my petite office with a glass of beer and revisiting the debut album from Jessie J, Who You Are.

Let's remind ourselves again...

I should summarise what exactly white space radio is (for those who may have missed my previous column) and what it hopes to achieve before I look at how far



it's come. In short, radio frequencies are assigned by government agencies to specific functions such as TV broadcasting. More specifically, the switchover from analog to digital TV will ultimately render the analog frequencies redundant; therefore, increasing the availability of unused radio spectrum. With digital transmission techniques, channels can now be compressed, enabling them to be transmitted adjacently whereas previously a guard band was used to separate channels to reduce interference between them. White space refers to this now redundant set of frequencies.

What's more, the lower range, 50MHz to 700MHz, will become available and proponents of white space radio have turned their attention to the 600MHz frequency. The focus on this particular frequency is poignant, as it "has excellent propagation characteristics – signals travel a long way, and pass easily through walls" according to Cambridge Consultants (cambridgeconsultants.com) whom I reported back in April 2011. The antagonists of white space radio have voiced their concerns claiming that use of the now redundant frequencies may cause interference with existing TV broadcasting. What's more, some have intimated that it may never happen. For now, I haven't seen a lot of screaming and shouting, and there will always be the sceptics so hopefully these initial reservations have been eased.

The Cambridge trials and the benefits of white space

In my April column I also speculated that some 'dust has to settle' as to the use within the UK, since the migration to digital has yet to complete; supposedly end of 2011. Plus I reported that Ofcom was writing guidelines as to its use and whatnot – I'm sure you recall the grass, fruits and horizontal rain reference? Nevertheless, as I mentioned earlier there are a number of trials underway in Cambridge. Apparently, there's a bloke in his Cambridge pub oblivious to why there's an antenna attached to his roof – pull us a pint and I'll tell you all about this white space stuff! And I'm not referring to the top of my Guinness either!

We have all had a portable TV in our bedroom with a very flexible antenna, normally a metal coat-hanger, that enabled us, along with some dextrous bending and positioning, to receive a picture. Well, that's it in a nutshell – that

kind of sums up the excitement surrounding white space radio. It has an ability to travel great distances, along with the enviable penetration of walls and, of course, the deep recesses of our homes, a fact that might make Bluetooth turn green (you know what I mean). Naturally, I have also seen some reports suggesting that white space is the 'Super Wi-Fi', which I'm sure will just confuse the bejesus out of everyday consumers. I mean, even the wife (or Wi-Fe as I sometimes pen her) transposes the notion of Wi-Fi as the Internet and, to be honest, I think the majority of us do too.

Are we all still excited?

Undoubtedly, the industry still remains excited. The 'Super Wi-Fi' thing is being touted, which will serve many consumers in rural broadband Britain and elsewhere, but other user scenarios are being conjectured, as I've seen in Luke D'Arcy's Incisor video ([click here for more](#)). One notable suggestion was the reference to smart metering and the machine-to-machine use cases; again, it's something to watch.

A new Special Interest Group (SIG) will be formed to help promote and support the future of the technology – several influential industry leaders have already provided the right momentum for this to move forward, not just with an interest in the technology, but a realisation of the potential commercial possibilities. Here at Incisor we understand that the SIG will bring together an agreement on the specification (sooner rather than later) and will encourage white space use within the industry. I think primarily these big players are attempting to establish credible evidence to ensure that there is a sustainable future for white space radio and that broadband can be delivered to homes that are affected by poor traditional broadband coverage. It is perhaps worth noting that the name white space hasn't necessarily been coined by any industry leader, as such. Instead, it's a name that has emerged as a direct consequence of the liberated analog TV frequency.

One step at a time

It's still early days for white space radio and it's certainly gaining momentum. I think the excitement has been the viability of the technology solving some real technological issues. I intimated in my previous column that I'll be keeping a closer view on the technology, but when

you have the likes of Microsoft, Nokia, British Telecom and Neul keenly participating in some significant industry trials then, I would dare say that the grass and moss might not have time to grow but, alas, we'll always have to endure the horizontal rain.

Since I'm in rural broadband Britain myself, I could certainly welcome greater speeds delivered to my home – I just wish I could use white space now. Okay, I know that Neul has launched some genuine products, but there's the whole infrastructure thing to manage, surely? Anyway, I have become incredibly frustrated with what I might perceive to be an eternity in downloading any website or uploading completed chapters to my publisher! I have been seeking alternatives in the hope to inform my existing telecommunications service provider to kindly shove their service where the sun doesn't shine. Anyhow, I came across a number of satellite broadband solutions where data rates of up to 10Mbps could be supported – this has to be much better than my current solution, right? I'll make a few enquiries and let you know...

Until next month ...

I've already had some heads-up regarding the feature for next month's Incisor issue. I may take a closer look at Bluetooth again – it's a subject that I'm particularly fond of! You will notice a fabulous advert in this month's issue from Pearson offering an amazing discount on our (Sarah and I) new social media book, 'Zero to 100,000'. Come on everyone, take advantage!

So, this is where Dr G signs off for this month.

About the Author

Dr Dean Anthony Gratton is a bestselling author and columnist, and has worked extensively within the wireless telecommunications R&D industry. He was an Editor of the Specification of the Bluetooth System: Profiles, v1.1, participated in defining the initial Bluetooth Personal Area Networking profiles, and was active in the Near Field Communication technology and marketing committees. His wireless research work has been patented.

You can contact Dean at incisor@dean Gratton.com and follow him on Twitter (@grattonboy). Additionally, you can read more about his work at dean Gratton.com.

INCISOR.TV VIDEO REPORT

Neul and Cambridge Consultants are two of the white space trailblazers.



Incisor.TV talks to two of their execs in order to gain in insight into the latest developments in this rapidly emerging sector.



Click on the screens to watch the white space movies.



Fraser Edwards explains how white space is more than just a solution for bandwidth crunch, and looks specifically at applications in the telehealth market.



Neul is the first company to launch real, live white space products. Luke D'Arcy positions Neul in the white space market, and provides an overview of developments including the establishment of a white space standard, and the Weightless Special Interest Group.

low energy wireless news

ZigBee leads early smart meter revenue growth

OK, some basic facts: the smart meter is a device that is at the heart of the smart grid transformation. It records a user's electrical, water, or gas usage at a set interval, and then provides a way for this data, or a subset of this data, to be read electronically, but that is just its minimum function. Typically smart meters perform many functions; so many, in fact, that new research from In-Stat forecasts worldwide smart meter revenues will eclipse US\$12 billion by 2016, the vast majority ZigBee-enabled.

Allen Noguee, Research Director at In-Stat told Incisor, "ZigBee has been considered the front-running short range connectivity option for smart grid since its inception, and has maintained its position so far. While the number of ZigBee clients in homes to date is relatively small, In-Stat believes that ZigBee will maintain its dominance. Although Wi-Fi is pervasive, it has not been a viable choice for the smart grid because the application layers have never existed for Wi-Fi that explain exactly how Wi-Fi devices interact. That will all change with the passage of the IP-based Smart Energy Profile 2.0, expected late in 2012."

Noguee's observations included:

- Powerline is the clear leader in backhaul connectivity from the meter to the utility. However, we are seeing an

increasing number of wireless solutions including cellular, white space, and proprietary methods that would use unlicensed and operate in mesh configuration.

- China, the world's biggest energy consumer, is also the biggest smart meter consumer.
- The number of smart meters deployed in the US per year will decrease after peaking in 2011, but worldwide smart meter deployment will continue to grow.

In-Stat has a report out - Getting Smart on Worldwide Smart Meter Communication Technology - that looks at the smart grid in general, and the smart meter and communication technology employed.

Service providers to push Home Automation systems

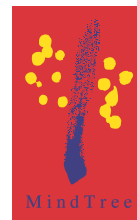
While approximately 1.8 million home automation systems were shipped globally in 2011, ABI Research projects that number will increase to over 12 million shipments by 2016, largely due to the fact that service providers are entering the managed home automation market.

One of the latest entries is Verizon, which has announced the pricing on its home automation control system, based on technology from Motorola Mobility (through its 4Home

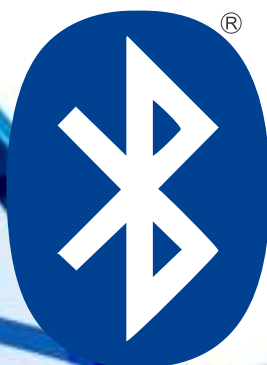
acquisition - it remains to be seen how the Google acquisition will affect this), starting at only \$9.99 per month. The basic version of Verizon's Home Monitoring and Control enables remote monitoring and control of cameras, Z-Wave lights, and door locks. For an extra cost, Verizon also offers energy management applications like automatic thermostats, special Wi-Fi adapters that control appliances and lights, and a sensor placed on the circuit box to measure whole-house energy use.

Verizon isn't the only competitor entering this burgeoning market, however. Service providers worldwide have developed their own home automation service solutions. Rogers Wireless in Canada now offers the Rogers Smart Home Monitoring System as of November 2010, and Orange (France Telecom), offers home monitoring services through its Livebox gateway-enabled broadband service. Telecom Italia and Telestra also offer their own version of home monitoring services.

Despite the influx of products eager to move into this emerging market, companies are still tackling substantial barriers to entry. "Service providers are still facing significant challenges," Sam Lucero, practice director, M2M connectivity, told Incisor. "Telco and cable operators now have to develop and deploy software management platforms to specifically enable the management of home monitoring services. This challenge has resulted in a swift consolidation within the small market that is privately-held home monitoring software platform vendors, with 4Home being acquired by Motorola Mobility, iControl and uControl merging, and Xanboo being acquired by AT&T."



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low energy wireless news



Nokia extends Symbian lifeline with 'Belle', ramps up NFC support

While we believe that Nokia continues to be sitting in a tree with Microsoft, the company is confounding expectations by announcing further updates to the Symbian operating system. And the latest announcement brings with it a further commitment from Nokia to Near Field Communication (NFC). As most readers of Incisor will know, Nokia was amongst the first – perhaps even the first – company to commercially launch NFC-enabled handsets, notably the Nokia 6131.

We've now learned that Nokia has launched three mass market smartphones, the Nokia 700, Nokia 701 and Nokia 600, all of which are packing **Symbian Belle**, the latest iteration of the Symbian OS. Symbian Belle provides single-tap NFC technology sharing and pairing. As well as allowing content to be shared between devices, the NFC capability allows any of the three new smartphones to pair with NFC-enabled mobile accessories such as speakers or Bluetooth headphones and headsets. To extend the range of available NFC-enabled accessories, Nokia has also announced the Nokia Essence Bluetooth Stereo Headset, which can be paired with any NFC-enabled smartphone simply by tapping the two devices together.

Gaming fans also benefit from the NFC capabilities of the new handsets with the ability to unlock additional levels in Angry Birds or find a hidden blade in Fruit Ninja just by touching two NFC-enabled devices together. It's not just these three new phones that will support Symbian Belle. Nokia told Incisor that the new version of the OS will be included with newly shipping versions of the Nokia N8, Nokia E6, Nokia E7, Nokia X7, Nokia C7, Nokia C6-01 and Nokia Oro, availability to be advised later.

Could 2011 be the year when NFC finally comes of age? Who'd have thought that it might be gaming apps that finally pushed it

over the brow of the hill, and onto the heady rush of the downward slope?

And you all thought it was going to be serious stuff like mobile payments, didn't you?

Google Wallet and NFC smartphones push retail contactless tech

Recent developments in contactless payment technology are generating renewed interest, and suggest that the long-delayed dream of comprehensive contactless payment systems may finally be approaching reality. The introduction of Google Wallet and the expectation that several new NFC-enabled smartphones will reach consumer markets soon have created a sense of optimism.

According to ABI Research, in 2010 only about 10% of total POS terminal shipments included some form of contactless technology. While the analyst firm told Incisor that it does not agree with some of the wilder media predictions for contactless POS growth – for example that within 12 months, one third of all terminals in the US will accept contactless payments – it does forecast that 85% of terminals shipped worldwide will be contactless-enabled in 2016.

Senior analyst Craig Foster told us, "Contactless has the potential to change the way we pay for goods completely, significantly reducing time spent queuing at the point of sale. It also represents an almost perfect fit for the vending industry, because:

- The increased speed and simplicity of check-out go hand-in-hand with the very essence of the vending machine – to provide goods quickly and conveniently;
- The fact that small-value transactions – typically under \$25 in the US – do not need to be authenticated by signature or PIN entry is very appealing to vending machine operators."

M2M practice director Sam Lucero added, "Contactless technology is also in the very early stages of adoption in ATMs: rather than inserting the card, a customer waves it in front of the machine and enters a PIN."

...value of NFC payment transactions in China to rocket

Staying with ABI, the company believes that China could see more than \$8 billion in mobile payments by 2014.

The Near Field Communication (NFC) market is moving forward on an uneven front, ABI believes. Google is aggressively supporting the technology through the latest generation of Android handsets from its partners such as Samsung. Nokia is introducing NFC-capable handsets, but the C7 and N9 only support non-secure applications and not contactless payment.

In China, however, device manufacturers and operators are keen to move ahead with contactless mobile payment. China's mobile payments industry is burgeoning, attracting many participants wishing to grab first-mover advantage and vie for a bigger slice of the pie. ABI estimates that NFC payment transaction values in China could surpass \$8 billion by 2014.

The Chinese government has expressed a preference for an NFC device solution utilizing the 13.56 MHz frequency band. To break the classic chicken-and-egg cycle, there are bridging solutions intended to stimulate the contactless payment market. The principal one is contactless (NFC) SIM cards. WatchData's SIMpass solution has attracted strong interest from all three operators.

As a result, more NFC handset add-ons are shipped than NFC-enabled mobile handsets: 2.5 million SIMpass add-ons and 50,000 SD add-ons, versus 45,000 handsets in 2010.



Mike Gaukroger,
TRaC

Worldwide Radio Approvals – the importance of staying informed

By Mike Gaukroger,
Principal Approvals Engineer, TRaC

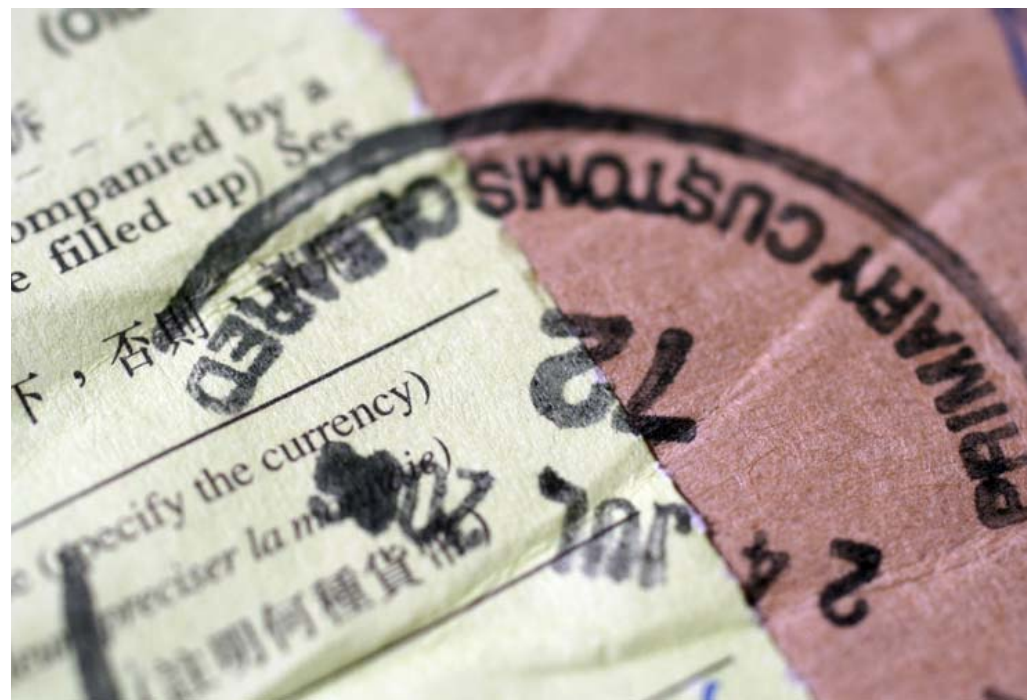
For some, the world of approvals may seem like a never-ending ocean; however it doesn't necessarily have to be like that. Not if enough preparation and forethought is put into deciding in which markets you want to place your products. Of course, demands change. We know that! Any good approvals engineer is always ready to assist a manufacturer with urgent approvals requirements, but ideally the manufacturer should try and speak to its approvals professional ahead of when it wishes to place its products on the market.

There are a number of reasons for this, but in our experience we find the following to be the most pertinent:

- Some country's approvals processes can be relatively time consuming, so the more notice for the application, the better.
- Requirements change. A manufacturer may have completed a product approval previously, only to find that the next time they go through the process the testing requirements or the approvals application process may have changed.
- Applicants assume that what is required for one country is the same for another.

These situations can be quite irritating, especially if a manufacturer wants to expedite the entry of his product onto a foreign market. Thinking ahead can make the whole process run much more efficiently and smoothly. To illustrate this, I'd like to expand on the issues I have mentioned above.

Firstly, it may be worth pointing out that many of the countries for which a manufacturer may be seeking market entry accept test reports to FCC and EU



requirements as part of the application. However, although these reports may be accepted, an application process with the national authorities will still need to be completed. This tends to simplify matters somewhat if a product is initially tested for placement on the European or North American markets

However, some countries do require that testing be performed 'in-country' by a domestic laboratory. It is in situations such as these that the timescales for completing the approval may take a little longer. A typical application for, say, South Africa, which accepts reports of testing to the appropriate EN standard, could be completed in 4-6 weeks. However, for a

Far Eastern country that requires in-country testing, this completion time could be expanded to 12 or even 16 weeks. That's why we advise checking the requirements on a regular basis. Products that do not have telecoms or radio ports tend to traverse a less convoluted process but, nevertheless, checking the requirements is still advisable.

I also mentioned that requirements change. Sadly this is not uncommon, and is another important reason to confirm the requirements. There tend to be two main reasons for changes. The first could relate to the actual testing, and the second is the introduction of new requirements. For example, Vietnam until recently accepted





test reports issued to the EN standards from a recognised test lab, of which TRaC was one of about 20. However, this has now changed so that testing must be performed in-country by one of the recognised domestic labs. Another example of a change is in the safety testing of products. This can often be subject to change, with amendments being added to the base standard. This has recently occurred in relation to the Ukraine and Serbia. Any manufacturer that supplies existing products into these domains should check with its approvals professional for any changes to the testing requirement, as this could affect future applications.

Sometimes, even if a product has no radio transmitters or telecoms ports, there can be misunderstandings with the requirements. In some cases, manufacturers have submitted products that will be imported by another country, believing that they do not have to go through any process because they have already performed safety and EMC testing to EN standards. Although many countries do indeed accept these reports as part of the application, as previously stated, there will be a requirement to complete an application process. For example, South Africa will accept reports issued to EN standards, but it is still necessary to go through an administrative process in order to obtain a grant to import, and some in-country representation may also be needed. This is a relatively simple process for the approvals professional, but failing to follow the required procedure when importing to a foreign country can cause considerable inconvenience and expense, particularly if the products are held up in customs.

Greener world creates new challenges

The above are a few examples of processes and mandatory requirements. They are fairly traditional and have been standard requirements for many years. However, as the world is trying to become "greener" and to conserve energy, many countries expect a product to conform to more demanding energy consumption

requirements. This is becoming a more prevalent condition around the world. National organisations are increasingly attentive to the energy efficiency of the products that are being deployed in their respective geographies. Mexico is an example of a country that has new energy efficiency requirements, and we will no doubt see an increase in the number of other countries introducing mandatory energy consumption testing in the near future.

So, hopefully, the message I am trying to convey here is clear. Although the process to introduce a manufacturer's product into a foreign market is relatively straightforward, there are some specific requirements that need to be satisfied; and the skill lies in knowing what those requirements are, and ensuring that all of the necessary information is provided at the outset. By doing this, unnecessary and costly delays to market access can be avoided. Early consultation with an approvals expert will highlight the hurdles that need to be cleared and will provide the manufacturer with enough foresight to be able to get its product to market in the most efficient way.

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Snippets

97% of smartphones will have touchscreens by 2016

Touchscreens can claim as much credit for the booming success of smartphones as can 3G data speeds. In the time since the launch of the original iPhone, smartphones with touchscreens have gone from 7% of the total smartphone volume in 2006 to 75% in 2010, and were a key driver to the market growing more than 325% over that period. Over the next five years, touchscreens will be as pervasive in smartphones as Wi-Fi chipsets are today, says ABI Research, reaching 97% of all smartphones by 2016.

Tablet shipments to approach 250M in 2017

As we enter the last half of 2011, researchers at In-Stat are forecasting more growth opportunities in the tablets market as a result of price degradation, and new tablets from major consumer electronic (CE) companies like Samsung, Motorola, BlackBerry, LG, and HTC. New In-Stat research forecasts that this trend will help push tablet shipments toward 250 million units in 2017.

Android grabs iPad market share

Worldwide annual media tablet shipments are expected to top 120 million units in 2015. While not quite as strong as traditional PC or smartphone annual sales, media tablets are emerging from the shadow of non-handset mobile devices and rapidly coming into their own. According to ABI Research, Android media tablets have collectively taken 20% market share away from the iPad in the last 12 months. However, no single vendor using Android (or any other OS) has been able to mount a significant challenge against it.

Small business spending on wireless services to overtake wireline voice

It has always been predicted that small business expenditures on wireless services would someday exceed that of wireline voice. That "someday" will be in 2012 as wireless becomes the largest category of telecommunications spending for small businesses, according to new research from In-Stat. Wireline data spending and cloud computing services round out the four spending categories.

low energy wireless news

Zigbee Smart Energy 1.1 test suite ready at TRaC as standard is released

UK and European test house TRaC has told Incisor that within days of the release of the latest version of the ZigBee wireless data standard for Smart Energy products, it had already concluded a comprehensive product test programme for a leading European manufacturer.

During July, the ZigBee Alliance formally made available version 1.1 of ZigBee Smart Energy – the Advanced Metering Infrastructure standard. The standard is based on the established ZigBee standard for self-organising (mesh) wireless data networking using the 2.4 GHz band. ZigBee Smart Energy overlays the protocols and services that will be needed to build the metering and control infrastructure for the much-discussed Smart Grid of the future. This latest, 1.1

version adds a number of key features including dynamic pricing enhancements and over-the-air updates.

Any of these features and services embodied in Smart Energy products must be fully tested for conformance before the product can be declared as ZigBee SE 1.1-Compliant. TRaC explained that it has a long-established policy of monitoring evolving standards, and immediately following the release of ZigBee SE 1.1, had a compliance-test suite in place.

With its new generation of Smart Metering products that employ ZigBee SE 1.1 features approaching release to market, Danish manufacturer Develco Products needed to be able to declare conformance to the Standard as soon as version 1.1 was formalised. Working closely with TRaC over a period of months, the two companies monitored the Standards process for any late changes. The end result of this, says TRaC, was a particularly fast turnaround resulting in 7 different SE 1.1 certified products.

Paul Russell, Director at TRaC, added, "The new ZigBee SE 1.1 test service strongly complements our comprehensive test and regulation services for ZigBee technology devices. We were particularly pleased to be able to work with Develco to provide them with certification testing results for their range of products within – literally – hours of the Alliance making the formal announcement of the release of the version 1.1 certification route."



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high speed wireless news



Cisco, Aruba, and Motorola to benefit from \$1.3 Billion healthcare Wi-Fi market

With its massive business potential, it's not surprising that the research companies are looking at the healthcare market. So far, this would appear to be a sector where Bluetooth and ZigBee have been making inroads. However, ABI Research is suggesting that Wi-Fi has already been widely adopted across professional healthcare locations in North America, and forecasts that the expansion of existing networks and the growing adoption of Wi-Fi in other regions around the world will ensure that the market for Wi-Fi access point hardware, software, and services will grow to \$1.34 billion by 2016.

Wi-Fi-embedded consumer devices are also making their way into professional healthcare locations, furthering the demand for access to professional healthcare Wi-Fi networks. "ABI Research expects the number of smartphone and handheld computing devices leveraging professional healthcare Wi-Fi networks to grow by close to 20% in this market in 2011," Jonathan Collins, principal analyst, wireless healthcare and M2M told Incisor.

Leading Wi-Fi infrastructure vendors including Cisco, Aruba, and Motorola are all focused on the potential for Wi-Fi in healthcare. These companies are set to benefit as customers not only build out their networks, but also turn to established vendors and their partners to deliver management for networks and the growing number of applications that will leverage that connectivity.

ABI suggests that existing Wi-Fi-based applications such as Voice over Wi-Fi and RTLS (real-time location systems), will increasingly be joined by a new generation of "medical body area networks" (MBANs), which are positioned to also leverage Wi-Fi connectivity through gateway devices that

take advantage of Wi-Fi connectivity to support mobile monitoring capability. The global MBAN market within professional healthcare will see nearly 30 million devices shipped annually by 2016.

Kineto's Smart Wi-Fi app on Android smartphones

Kineto Wireless, which is a supplier of Smart Wi-Fi solutions for mobile operators, is working with ZTE to pre-load its Smart Wi-Fi Application onto select new Android-based ZTE smartphones. The first ZTE Android smartphone with the application will be the Skate.

Kineto claims that its Smart Wi-Fi application is the industry's only smartphone app that delivers an intelligent offload solution while improving coverage using existing Wi-Fi access points. The application provides users with the same mobile voice, SMS and data service experience over Wi-Fi that they receive on the outdoor cellular network.

With Smart Wi-Fi, Kineto told Incisor that the mobile service providers can offer their subscribers improved indoor coverage using their existing Wi-Fi access points, encouraging the use of Wi-Fi and driving mobile data offload. Operators deploying Smart Wi-Fi, Kineto suggests, have experienced a 25-50 percent reduction in churn from subscribers using the service and have found Smart Wi-Fi users consume 25 percent less data from the macro network.

Mark Powell, vice president and co-founder of Kineto Wireless said, "Smart Wi-Fi is continuing to win support from operators, smartphone manufacturers and consumers. The addition of ZTE to our stable of device partners is a testament to the fact that operators and subscribers are demanding Smart Wi-Fi capabilities. ZTE is one of the fastest growing of the smartphone

manufacturers, and so we are excited to have Smart Wi-Fi pre-loaded on the Skate."

Kineto also told us that its Smart Wi-Fi Application has been pre-loaded on an additional 15 Android smartphone models launched by wireless operators in Q2 2011.

Anyone wanting more information about how Smart Wi-Fi works can go to <http://smart-wi-fi.com/>.

Wi-Fi too complicated?

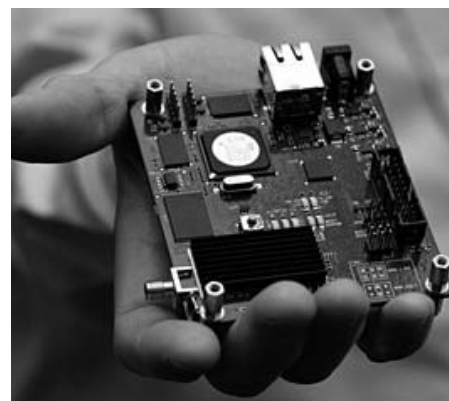
Californian Wi-Fi company Ruckus Wireless has announced FlexConnect, which it says is a collection of patented technologies that streamline the provisioning and security of a wide range of smart mobile devices.

The company also detailed future plans to support the automatic identification and classification (so called device fingerprinting) of new smart mobile devices, opening the door to device-specific policy enforcement, visibility, management and self-registration.

Selina Lo, president and CEO of Ruckus Wireless told Incisor, "We are experiencing device usage growth like we've never seen before – and the impact on computer networks is profound and permanent." Lo went on to mention the forecast that was included in a recent report by Morgan Stanley, which suggested that smartphones will outsell personal computers by 2012.

With FlexConnect, IT staff can now automatically provision wireless device settings (such as SSIDs and unique pre-shared keys) on mobile devices while also provisioning other wireless authentication and security parameters (such as 802.1X supplicants and certificates). This, Ruckus claims, simplifies the administration and troubleshooting of Wi-Fi-enabled smartphones and tablet devices. Ruckus says that Zero IT provides ease-of-use device provisioning for configuration parameters while Dynamic PSK automates the creation of per-user encryption keys that can be easily distributed using the Zero IT framework.

4g/lte/wimax news



Clearwire to add LTE Advanced to Its network

Clearwire, which is one of the providers of so-called - 4G wireless broadband services in the United States, has announced its intent to add "LTE Advanced-ready" (a hedge-betting mouthful, that!) technology to its 4G network. The announcement follows the completion of 4G technology trials that achieved download speeds exceeding 120 Mbps.

LTE Advanced is a 4G technical standard that calls for peak download mobile speeds of at least 100 Mbps, which far exceeds today's commercial networks. Clearwire's LTE network will be "LTE Advanced-ready" meaning that it will use an ultra-high-capacity spectrum configuration that is superior to the typical configuration of the slower, more capacity-constrained commercial LTE network designs in the United States of today.

The initial implementation of Clearwire's LTE network will target densely populated, urban areas of Clearwire's existing 4G markets where current 4G usage demands are high. The all-IP infrastructure already deployed in these markets can, Clearwire suggests, be leveraged to serve the company's LTE needs, delivering significant capital cost savings compared to a similar overlay by other carriers of an existing 3G architecture.

Dr. John Saw, Clearwire's Chief Technology Officer told Incisor, "This is the future of mobile broadband. Our extensive trial has clearly shown that our 'LTE Advanced-ready' network design, which leverages our deep spectrum with wide channels, can achieve far greater speeds and capacity than any other network that exists today. Clearwire is the only carrier with the unencumbered spectrum portfolio required to achieve this level of speed and capacity in the United States. In addition, the 2.5 GHz spectrum band in which we operate is

widely allocated worldwide for 4G deployments, enabling a potentially robust, cost effective and global ecosystem that could serve billions of devices."

Clearwire also noted that since launching its first 4G market in 2009, video has become the largest component of the company's overall data traffic and video traffic itself has increased more than tenfold since 2009. The company believes that as more video-intensive smartphones and services rise, so will the needs for Clearwire's high-capacity 4G wholesale network.

Clearwire's LTE implementation plan, which is subject to additional funding, contemplates deploying Time Division Duplex (TDD) LTE technology and reusing its all-IP network architecture and upgrading base station radios and some core network elements.

Making sure that is keeping a foot in both camps, Clearwire also restated its commitment to its existing 4G WiMAX network, which covers approximately 132 million people while serving 7.65 million retail and wholesale customers and an ecosystem of nearly 110 WiMAX enabled devices, including all 4G phones currently offered by Sprint. Clearwire expects to end 2011 with approximately 10 million 4G customers.

Cambridge Consultants develops smallest 2G and 3G femtocell base station

Cambridge Consultants has launched Sidewinder, and claims it is the smallest commercially available 2G and 3G small-cell platform. Aimed at mobile phone communications and professional radio, Sidewinder is software configurable between GSM/GPRS/EDGE,

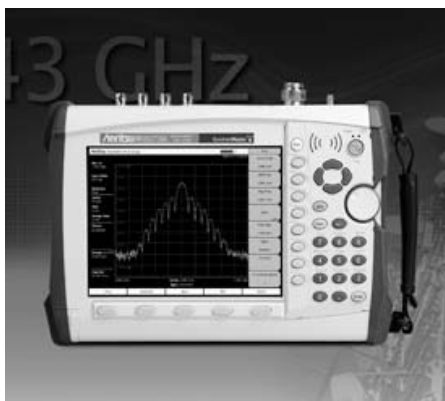
WCDMA/HSPA+ and other SDR applications, providing various levels of adaptability for cellular base stations.

Built for the changing broadband mobile communications market, Sidewinder provides a solution for developers creating products that need to adapt as new wireless technologies and standards emerge. The radio design enables Sidewinder to operate at any carrier frequency from 375MHz to 4GHz and with a channel bandwidth from 200kHz to 28MHz. Available off the shelf, Sidewinder supports GSM link ranges up to and in excess of 40 metres indoors and 200 metres outdoors. The base station can be provided either as hardware supplied directly from Cambridge Consultants, or as a reference design that can be manufactured by licencees. Sidewinder is compatible with Cambridge Consultants' own Centaur GSM/EDGE PHY software reference and WCDMA software from Picochip. Alternatively, it can also be provided in combination with the Centaur GSM PHY as a complete development platform.

On the front end, Sidewinder makes use of a radio device from Lime Microsystems Limited. Connected to this is Picochip's PC312 Femtocell Baseband SoC, delivering a DSP and an ARM application processor combined with low power consumption, making it suitable for some battery-powered applications. Sidewinder can also be integrated into base station or mobile units for Police, Emergency Services and other professional radio users.

Fraser Edwards, Group Head of Radio Frequency Systems at Cambridge Consultants, told Incisor, "In a product environment disrupted by new communications standards and the demand for ever-higher data bandwidth, we wanted to build a low cost base station which could be customised for just about any setting. With Sidewinder we have achieved this, with the added bonus of being one of the most compact yet powerful designs on the market."

4g/lte/wimax news



Anritsu expands LTE measurement Capability

Anritsu Company has enhanced the LTE measurement capabilities in its MS272xC Spectrum Master and MT822xB BTS Master series of handheld analyzers. The company tells Incisor that with the new analysis tools added to the existing measurement capabilities, field engineers and technicians have handheld instruments that can conduct nearly all the measurements necessary to successfully deploy, commission, and maintain LTE networks.

Among the new analysis capabilities are enhanced Over-the-Air (OTA) functions, including a new Transmitter Test measurement capability that allows users to perform key measurements on an eNodeB transmitter in an OTA configuration when a direct connection is not possible. This also helps make the MS272xC and MT822xB measure Remote Radio Heads (RRH).

The OTA option has new coverage mapping functions that allow users to determine the downlink coverage quality in a specific location. S-SS (Secondary Sync Signal Power), RSRP (Reference Signal Received Power), RSRQ (Reference Signal Received Quality), and SINR (Signal to Interference plus Noise Ratio) can be plotted using five user-definable thresholds. From these measurements, the new scanner measurement screen shows up to six LTE sectors on the instrument display.

Power levels within an LTE frame can be colour coded for analysis. Power settings can be adjusted to a spectrogram measurement, and the screen can display the active percentage of resource blocks in use. This, says Anritsu, is ideal for locating traffic and capacity issues. Users can also view channel power to compare utilization and power to determine if there are any anomalies in the signal.



LTE MIFI hotspot boosts Novatel

Novatel Wireless, which develops wireless broadband solutions, tells Incisor that its healthy 2Q results were boosted by hotspot sales.

"Our second quarter benefited from strong growth in our MiFi intelligent mobile hotspot product line, as well as initial sales of 4G Expedite embedded solutions," Peter Leparulo, CEO of Novatel Wireless told Incisor. "Our LTE MiFi hotspot has quickly become the category leader. Our LTE Expedite embedded modules have achieved a number of tier-one OEM design wins for future product launches in the U.S. and around the world. The quarter saw like for like revenues grow from \$71.8 to \$118.0M, while non-GAAP net income losses were down from \$(4.3M) to \$(0.9M)."

"In our M2M business, we are seeing the benefits of our Enfora acquisition begin to unfold, although revenues were constrained due to shortages of certain key components caused by supply disruptions in Japan. Our recently launched Spider MT2500, MT3000 and AT3010 solutions with our N4A software gateway platform have received strong interest from global carriers and enterprise customers seeking asset tracking systems and are expected to be key products for driving our M2M business growth."

In May, Novatel Wireless became the first provider to have an embedded LTE solution commercially available and compatible with the Verizon Wireless network. Its Expedite embedded-module portfolio integrates high-speed data connectivity into tablets, notebooks, and various other portable devices. Customer shipments to leading manufacturers began during the second quarter.



Half of femtocell security gateway revenue to come from enterprise

Consumer femtocells are expected to account for the bulk of the market. But in the femtocell core network, enterprise will play a bigger role, according to a new study from ABI Research. Femtocell core networks are based on user capacity rather than access point deployments, and the number of enterprise femtocell users is expected to be far greater than consumer femtocell users.

Aditya Kaul, practice director, mobile networks, told Incisor, "While the femtocell access point vendors are concentrating on the consumer femtocell market (driven by access point volumes), the femtocell gateway vendors need to focus on the enterprise market. They should consider building partnerships that focus on that segment and allow them to tune and enhance their products' capabilities for the enterprise."

Of the current 70+ contracts, ABI Research says it has counted at least 15 pure enterprise femtocell contracts, with 25 contracts being a mix of residential and enterprise femtocells. Enterprise femtos are to make up 36% of shipments by 2016 which relates to 50% of security gateway revenues.

Those revenues will be garnered by Genband, Acme Packet, Stoke, Intellinet, Huawei, Alcatel Lucent, Cisco and other key security gateway vendors who make up the market. Some of the larger end-to-end femto suppliers are starting to consider partnering for security gateways. This, says ABI, is beneficial for independent vendors such as Genband, Acme Packet, Stoke and Intellinet.

events



	DATE	EVENT	LOCATION	NOTES	LINK
2011	Sept 1 - 2 2011	Wireless China Industry Summit	The Landmark Hotel & Towers, Beijing, China	-	http://www.wirelesschina-summit.com/
	Sept 18 - 21 2011	CTO Telecom Summit	Scottsdale, AZ, USA	-	http://www.ctotelecomsummit.com/
	Oct 4 2011	Bluetooth Technology Conference	Munich, Germany	-	http://www.bluetooth-conference.com
	Nov 9 - 10 2011	Wireless Congress 2011: Systems and applications	Munich, Germany	Partners include Bluetooth SIG, EnOcean Alliance, ZigBee Alliance	http://www.wireless-congress.com/
2012	Jan 9 - 12 2012	Consumer Electronics Show (CES)	Las Vegas, Nevada, USA	-	http://www.cesweb.org
	Feb 21 - March 1 2012	Mobile World Congress 2012	Barcelona, Spain	-	www.mobileworldcongress.com
	April 24 - 26 2012	Bluetooth Special Interest Group All Hands Meeting	Renaissance Vancouver Hotel, Vancouver, Canada	-	www.bluetooth.org

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Click I.T. Ltd
Hampshire Gate
Langley, Rake,
Hampshire GU33 7JR, England
Telephone: +44 (0)1730 895614

Incisor provides commercial and promotional opportunities in the short range wireless sector.

Contact: Vince Holton
Email: vholton@incisor.tv
Tel: +44 (0)1730 895614

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