

# INCISOR™

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Video enabled  Issue 142

January 2010



## VISITING VEGAS WHEN THE CHIPS ARE DOWN

### THIS ISSUE

CES 2010 – OPTIMISM OR MORE GLOOM?

PROGRESS IN THE WORLD OF CONNECTED HEALTH

BLUETOOTH 4.0 – A COMING OF AGE

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# veni, vidi, vici

Well, that may be overstating the situation a little bit, but for me at least, I came away from the 2010 Consumer Electronics Show (CES to all but the CEA) feeling that Bluetooth's position in the WPAN ecosystem was looking pretty secure. Perhaps it hasn't conquered the world just yet, but there are indicators that the technology has put a little more free air between itself and some of the competition. Read why I feel this way in my story 'Don't ask me about CES' on page 10.

And that story also provides me with a better response to all of those people that regularly do ask me about CES every year. I now have a better answer – watch the IncisorTV CES daily show reports. This was a new venture this year, and with the help of the Bluetooth SIG and Parrot, we managed to pull off this challenging project. If you haven't watched the shows yet, Day 1 can be viewed by using the link below, while there are links to Days 2 & 3 in the 'Don't ask me ...' article.

CES also came hot on the heels of the Bluetooth SIG's announcement of the Bluetooth 4.0 standard. The ratification of the Bluetooth low energy standard is a major step forward, and Dean Gratton provides his overview on page 13.

And let me take this opportunity to welcome two highly valued new sponsors. Cambridge Consultants is the hotbed of creative British ideas that brought former Incisor sponsor CSR to the world, and which has developed many breakthrough products and created and licensed intellectual property for clients across the world.

TRaC is a leading provider of testing, consultancy, certification and global approval services for the communications industry.

Both companies will be adding interesting and compelling content to Incisor. Cambridge Consultants' first piece is featured this month, while TRaC will feature from the next issue.

**Vince Holton**  
**Publisher & editor-in-chief, Incisor / IncisorTV**

## INCISORTV FOCUS THIS MONTH:



Watch the IncisorTV Daily Show reports. This is Day 1. Days 2 & 3 can be viewed from page 10 and 11 or at the IncisorTV site – [www.incisor.tv](http://www.incisor.tv)

## FROM INCISOR'S READERS

"Incisor is the industry go-to for wireless updates. It is open to new technologies like NFC, and willing to promote such technologies. I consider it the number 1 online/softcopy publication in the field. Thank you Vince and keep up the accurate integral work".

- Peter Coster, Ecosystem Development Working Group Chairperson, NFC Forum, Japan

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### DON'T ASK ME ABOUT CES!

Well, this year you can, actually. Vince Holton's CES summary, plus his views on how Bluetooth seems to be pulling ahead of the competition

### PROGRESS IN THE WORLD OF CONNECTED HEALTH

Paul Williamson of Cambridge Consultants examines a subset of the M2M market

### SPOTLIGHTING BLUETOOTH 4.0

May the fourth be with you, puns Dean Gratton

### THE PRICE IS RIGHT

Or is it? Vince Holton questions the CE pricing policy.

#### Postscript/footnote:

In our December issue we published an interview with Mr Koichi Tagawa, chairman of the NFC Forum. When discussing the possibility of handset manufacturers adding Wi-Fi to NFC phones, it is Mr Tagawa's recollection that he did not mention any manufacturer by name. The NFC Forum has no specific knowledge of any vendor's plans in this area.

## EDITORIAL CONTACTS

### INCISOR IS PRODUCED/DISTRIBUTED BY:

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

### CONTACT DETAILS:

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

Sales & Business Development:  
 Mike Knivett – [mike@incisor.tv](mailto:mike@incisor.tv)  
 Telephone: +34 667 204629

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

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# news



## TRaC reaches milestone in worldwide approval

UK test, validation and certification company TRaC has reached a major milestone, by now providing a test approvals management service that allows its customers access to over 150 countries.

Gaining access to the developing regions of the world is viewed by many as essential for growth, TRaC says. As traditional markets become saturated, forward-looking OEMs are moving into these relatively new markets in order to achieve financial growth. A significant part of that strategy is gaining product approvals as quickly and efficiently as possible. TRaC's approvals management service is built on its position as a recognised Notified Body for a range of European directives, accreditation by UKAS to ISO/EN 17025 and approval to BS EN ISO 9001:2008.

Achieving compliance in CIS countries and developing regions quickly requires the combination of standard testing procedures with the flexibility to accommodate a differing list of requirements. TRaC has developed the necessary relationships, experience and flexibility to successfully help its customers achieve compliance in over 150 countries worldwide with speed and efficiency.

"Managing the approvals process in the European Union (EU), is simplified through a common approvals scheme", commented Joe Lomako, TRaC's Business Development Manager. However, managing that same process for, say, African countries such as Kenya or the Ivory Coast, or CIS countries such as Turkmenistan, Uzbekistan or Belarus is vastly more complex and needs the skills of a management team familiar with the market, the approvals process and its demands."

## Revenue from networked HMDs to more than double

Consumer electronics devices that can integrate with home networks are set to deliver



more than double the revenue in 2012 that they did in 2009, according to new market data from ABI Research. In 2009, worldwide revenue from these popular products was slightly over \$100 billion; in 2012, that figure will exceed \$243 billion.

"In line with the conventional wisdom, consumers seemed more eager than ever during the economic decline to enhance their home entertainment options. Television sales in particular did very well in 2009" said practice director Jason Blackwell.

The push to connect more and more devices comes not only from consumers' appetite for digital entertainment content that they can move around the home, but to device vendors' desire to differentiate their products from their competitors'.

In addition to connected TVs, the most popular categories of network-ready CE devices include mature categories such as set-top boxes, and those showing dramatic growth from small beginnings, such as connected digital still cameras, digital media adaptors, and networked Blu-ray players.

While these trends mainly reflect the situation in the "first world" markets of North America, Asia-Pacific and Western Europe, in all those regions these markets are developing along similar lines and at similar rates.

## Texas Instruments qualifies Bluetooth low energy controller

Some time back, Texas Instruments made a commitment to provide both dual-mode and single-mode Bluetooth low energy solutions, and it seems it is delivering on the promise.

TI has qualified a Bluetooth low energy wireless technology controller on its BlueLink 7.0 (BL6450-L) solution. This was done in conjunction with the recent adoption of Bluetooth Core Specification Version 4.0 by the Bluetooth Special Interest Group (SIG). In



addition to supporting Bluetooth low energy, TI will provide Bluetooth low energy support for its CC254x line of single-mode, low-power RF products..

"Continuing to support standalone and combo Bluetooth solutions, TI is thrilled to be one of the first to achieve this qualification, and looks forward to future Bluetooth low energy support," said Eran Sandhaus, TI's marketing director, wireless connectivity solutions,. "This milestone represents a solid first step in realizing dual-mode Bluetooth capabilities in the mobile market, turning mobile devices into robust 'gateways' for low-energy solutions, driving the growth of wireless personal area networks."

## And Broadcom too ...

Broadcom followed Texas Instruments, also announcing that its latest generation Bluetooth combination chip is compliant with the low energy version of the Bluetooth technology specification.

Broadcom's Bluetooth low energy product offering includes hardware and software that will be made available across a number of the company's Bluetooth products over the coming year. The first Bluetooth low energy offering will be the Broadcom InConcert BCM2049 Bluetooth combo chip that supports Bluetooth low energy dual-mode operation.

In support of the Bluetooth low energy specification, Broadcom has developed additional software profiles to support sensors as a feature of its software stack. Once this, and other Bluetooth low energy profiles have been formally defined and approved by the SIG, Broadcom will make them available to its OEM partners.

Craig Ochikubo, Vice President & General Manager, for Broadcom's Wireless Personal Area Networking line of business commented, "Bluetooth low energy adds a new dimension to the personal wireless ecosystem, adding sophisticated standards-based remote monitoring to a range of consumer devices."



## Bluetooth headset market, recovery by 2011 likely?

IMS Research had published its latest thoughts on the Bluetooth headset market. Initially, it says, the Bluetooth headset was a success story; shipping over 40 million units within the first 4 years of its launch. However, the industry has seen a 20 to 30% decline in the number of headsets shipped in 2009.

The most obvious and detrimental factor which has influenced this trend is of course the economic downturn. However, there have been issues which have meant that the Bluetooth headset market has felt the effects of the economic downturn more significantly than other markets. Those issues, particularly relevant to the Bluetooth headset market, are more concerned with consumers' perceptions and opinions. [Incisor TV's recent string of Bite-back events](#) support this view; a high percentage of consumers who attended spoke out against Bluetooth, suggesting that wearing a Bluetooth headset was perceived to be very "un-cool".

Headset manufacturers are already attempting to overcome these perceptions and opinions shared by some consumers by offering new, innovative designs, which aim to make their products much trendier to look at and wear. Despite speaking out against Bluetooth headsets, when questioned, the majority of attendees were relatively impressed with features that are available on headsets and the concept of Bluetooth technology. New compelling features and functions, such as voice recognition and solar powered headsets, offer headset manufacturers the opportunity to develop the device in a way which makes it a "cool" product to own.

Another key factor the industry should consider is that there are a large number of

low-cost, poor-quality headsets that are available for consumers today. The fact that these devices have poor sound quality and are very difficult to pair for the average consumer, discourages consumers to re-purchase and promotes negative word-of-mouth. However, many consumers might be prepared to spend that bit extra to obtain better sound quality and most understand that the price they pay is equivalent to the quality they will receive. Despite this, the image of the headset industry will not be helped by an increasing share of the market consisting of sub \$40 headsets, which offer below average sound quality.

Sennheiser, a high-end headset manufacturers, is already looking at ways to improve the sound quality offered by stereo headsets through their latest headphones - the PX210BT and the PXC310BT. Both devices use codec technologies (in this case, APTX), to offer a high-quality sound solution which aims to help diminish the image of poor sound quality associated with some, low-cost headsets.

Being an accessory and not a necessity has worsened the effects the current economic climate has had on the demand for Bluetooth headsets. Despite the haunting effects the downturn has had on the mono headset market, progress made with one particular handset manufacturer helped provide the industry with optimism that there was still some hope for the stereo headset market. These recent developments which saw A2DP, the stereo headset Bluetooth profile, being used in the iPhone and portable media players, helped encourage and seed the market for stereo headsets, counteracting some of the impact of the recession.

Considering all factors discussed above, IMS Research estimates that although the Bluetooth headset market may struggle to recover as quickly as other consumer

electronic markets, the total volume of Bluetooth headsets is forecast to be in touching distance of those shipped in 2008 by 2011.

## First Bluetooth low energy test solution?

Anritsu has launched what it claims is the industry's first Bluetooth low energy testing option that allows designers and manufacturers of Bluetooth products to conduct radio layer testing that is in compliance with the newly adopted Bluetooth Core Specification 4.0.

With the option, engineers can use the MT8852B to complete a test script covering Bluetooth Basic Rate, Enhanced Data Rate (EDR) and low energy measurements in <15 seconds by pressing a single key.

The new Bluetooth low energy measurement option adds six low energy test cases to the base MT8852B test set. These new test cases can be run as part of a test script to simplify creation of test programs and reduce test times. Bluetooth low energy measurements are performed directly on the MT8852B which controls the DUT using defined HCI or 2-wire control commands. For development applications, the MT8852B low energy measurement option is supplied with a PC application that displays low energy reference test packets in graphical format, as well as providing clear pass/fail status for all supported measurements against the specified limits. This facilitates the identification of the causes of any device failure during the critical design and development stages.

# news



## Embedded Mobile & M2M markets see growth

According to Juniper Research, the number of Mobile Connected M2M and Embedded Devices will rise to almost 412 million globally by 2014 with several distinct markets accounting for the increase in their number.

The markets include: Utility metering, Mobile Connected Buildings, Consumer & Commercial Telematics and Retail & Banking Connections.

“The most widespread category will be connections related to smart metering, driven partly by government initiatives to reduce carbon emissions,” says Anthony Cox, Senior Analyst at Juniper Research. Other areas, such as the healthcare sector, will ultimately see more potential in achieving service revenues he says.

Further findings from the Embedded Mobile and M2M research include:

- Saturation in operators’ core businesses is leading mobile operators to re-evaluate and invest in the potential of M2M
- Operators and M2M specialists recognise that scale is key, since ARPU for M2M and embedded devices is lower than for standard mobile services
- Regulatory initiatives in different geographical areas will provide an important fillip for the M2M market such as European Directives on smart metering
- With the exception of certain consumer applications such as mobile gaming and eReaders, 3G’s use for M2M applications will be limited for the immediate future as M2M usually does not require the high bandwidth 3G affords

The report contains six year forecasts for mobile M2M parameters and attributable



service revenues including; the number of connected buildings, mobile connected utility meters, new consumer vehicles, on-board M2M systems - mobile connected commercial vehicles, mobile telematics devices, mobile healthcare - number of monitored individuals.

## LTE to double IMS Market

Revenue from mobile IMS (IP Multimedia Subsystem) sales is expected to increase more than 100% over the next five years, according to ABI Research. Approximately \$8.4 billion was spent on IMS during 2009, and ABI analyst Aditya Kaul predicts that that figure will rise to \$17.3 billion in 2014.

What will spark this strong growth? “IMS uptake will be closely associated with the deployment of LTE (Long Term Evolution) networks worldwide,” said Kaul. “It’s all to do with recent progress in standardizing how voice services will be handled within LTE.”

Data has been seen as the glamorous “new kid on the block” of mobile services, and LTE has until now been regarded as a largely data-centric set of technologies. Until very recently LTE has not included good voice handling capabilities; yet most operators still earn 70% of their revenue from voice and SMS services. That has been a stumbling-block for LTE.

Now, however, a group of operators and OEMs — AT&T, Orange, Telefonica, TeliaSonera, Verizon, Vodafone, Alcatel-Lucent, Ericsson, Nokia Siemens Networks, Nokia, Samsung and Sony Ericsson – has agreed on the “One Voice Profile,” a standard that defines a viable solution for voice in LTE. That, said Kaul, should encourage more operators to migrate to LTE, with the resulting greater adoption of IMS.

“IMS vendors have been waiting a long time for this,” he says. “They’ve invested huge sums in IMS and haven’t been recouping that investment as they thought



they would. Now One Voice, paired with the completion of the Rich Communication Suite, will drive strong IMS market growth. IMS vendors are already reporting a definite increase in RFPs and sales.”

## Anritsu supports LG’s LTE USB Modem

The Anritsu MD8430A LTE Signaling Tester and MX786201A Rapid Test Designer (RTD) software has been selected by LG Electronics (LG) as a primary test solution for device development, integration, and performance testing.

Anritsu’s solution supports data rates higher than 100 Mbps in the downlink and 50 Mbps in the uplink as well as support for the latest 3GPP standards (Jun. ’09 Baseline specification). As LG’s test equipment demonstration partner, the Anritsu solution and LG’s LTE USB Modem was showcased at the LG Booth during CES. The demonstration showed maximum download speeds from a simulated LTE network to the LG LTE USB Modem with the MD8430A Signalling Tester serving as the LTE base station and network simulator. The MX786201A RTD software will be used for test automation.

“The combination of the MD8430A with RTD was the first LTE test solution of its kind and was developed based on Anritsu being actively involved in LTE standards organizations and working with LTE chipset and device manufacturers. It is helping our customers ensure the quality of their products, speed time to market, and reduce design and production test costs” said Wade Hulon, Vice President and General Manager of Anritsu Company, Americas Sales Region

The MD8430A is an LTE network simulator that provides test capability for protocol and application tests, including throughput, inter-RAT and intra-RAT. Built-in 4-RF capability allows for testing of 2x2 MIMO handoff and simulation of complex RF environments in a single instrument.

new products – stuff we like

# Creative Inspire S2 Wireless speakers featuring APT-X coding

**This speaker system featured heavily in the IncisorTV CES daily show reports. During Day 2's show we covered the Bluetooth SIG's Best of CES award ceremony, which saw Creative's speakers take the SIG's overall Best of CES award. As part of Day 3's show, IncisorTV interviewed APT-X's CEO Noel McKenna, who told us about APT-X's impressive progress since showing a vapourware proposition at CES 2009.**

Vapourware has now become finished product. This speaker system comes from Creative, but crucially the system uses APT-X's high-performance audio codec. So, what are we reviewing here – a speaker system or a codec? Well, you have to say that this is a situation where the sum is greater than the two halves. As a starting point, the compact speaker system provides users with wireless music from their Bluetooth-enabled notebooks, PCs or mobile devices with wireless music playback. It does this via its built-in wireless receiver or any notebook or PC with a USB port by means of a plug and play USB Bluetooth transmitter. Users can also play and control music on the Creative Inspire S2 Wireless speaker system from other Bluetooth-enabled devices.

Straight out of the box it is apparent that the Creative Inspire S2 wireless speaker system is a current generation Bluetooth product because it just works, the way Bluetooth products should. First time pairing, or re-pairing, it is simple and confidence inspiring.

Then you start using it and you realise that some serious thought has gone into providing a well-balanced, full and vivid sound, courtesy of APTX's audio codec, and there is as much (adjustable) bass as you could ever want, should that be your thing.



It is hard to say much more because this is simply an excellent product that does what it says on the box – not something you can always rely on. And we can't demo the sound for you – you'll simply have to find out for yourself. APT-X did use an excellent demo at CES that showed the difference between two sets of Sennheiser stereo Bluetooth headsets, one with the APT-X audio codec, and one without. The difference was startling. This demo may be on a web site somewhere, but we haven't found it so far.

So, go out and buy a set, you won't be disappointed. Having sound quality this good on the desk has persuaded me to

get around to doing what I had been thinking might never happen - refining my all-time top play list at Spotify!



Watch the IncisorTV interview with APT-X CEO Noel McKenna.

new products

# High-end Bluetooth speakers gain colour



**Parrot's Philippe Starck designed and Bluetooth-enabled Zikmu home speaker system has been updated with what Parrot is calling the 'in colour' collection: in addition to the original black version, Parrot will now supply the speakers in white, grey and what is described as yellow, but which to our eyes looks a little more like lime green in real life.**

"With Zikmu, we created a beautiful and a unique object, for listening to music with today's digital devices: iPod, iPhone, PC, Mac, television," Henri Seydoux, founder of Parrot, told Incisor. "With the 'Zikmu in colour' collection, we are pursuing the idea of a high-tech product which is part of everyday life, in the same way as a piece of furniture or a decorative object. You choose it because you like it, because you will live well with it."

At the same time as launching the Zikmu 'in colour' range, Parrot has implemented a software update that provides a new web interface that introduces a new browsing mode that enables you to select music from an iPod, plus an equalizer offering pre-settings according to the chosen music themes. For those that didn't catch the Zikmu the first time around, these high-end speakers offer 360° immersive sound, providing what Parrot calls 'a perfect and crystal clear sound image'. Parrot puts the high quality

audio performance down to the NXT technology and a very specific control of all electro-dynamic elements via a system of DSP processing and amplifiers.

You can listen to your music from your iPod/iPhone via a dedicated docking station, from your PC or Mac, with audio streaming via Wi-Fi and Bluetooth, and from mobile phones that support Bluetooth stereo audio streaming (A2DP). Oh, and an RCA line-in means you can also hook the speakers up to a TV screen for a home cinema sound effect.



*This movie created at CES sees Parrot CEO Henri Seydoux showing the company's amazing iPhone + radio-controlled helicopter + Wi-Fi + augmented reality mobile gaming demo, followed by Marketing Director Cristina Sainz talking about the racy new Zikmu colours and the 'Parrot by ....' Programme*

## 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**

[CES 2010 Daily Show report – Day 1](#)

[CES 2010 Daily Show report – Day 2](#)

[CES 2010 Daily Show report – Day 3](#)

[BiteBack Asia](#)

[BiteBack USA](#)

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[IncisorTV commercial for CSR/SiRF merger](#)

[DECT Forum and CAT-iq in 2009](#)

[Bluetooth SIG – Best of CES 2009](#)

[WiMedia Alliance – UWB in 2009](#)

[Incisor showreel](#)

[WiMedia special - UWB - a high performance solution / part 1](#)

[WiMedia special - UWB - a high performance solution / part 2](#)

[WiMedia special - WiMedia and Bluetooth](#)

[WiMedia special - Updating the WiMedia roadmap](#)

[WiMedia - The future for UWB](#)

[Bluetooth low energy wireless technology](#)

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[IncisorTV commercial for CSR RoadTunes](#)

[IncisorTV commercial for CSR BlueCore Player](#)

[A guide to Bluetooth Version 2.1 + EDR](#)

[10 years of Bluetooth / Best Bluetooth of CES 2008](#)

[CES 2008 – Profile of Parrot](#)

[Introducing Incisor](#)

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[Bluetooth / Wibree launch event \(full version\)](#)

[Incisor TV overview: the Bluetooth SIG / Wibree Forum merge](#)

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[Wireless USB special - Introducing Wireless USB](#)

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[Wireless USB special - The future for Wireless USB and UWB](#)

[Wireless USB special - Wireless USB at CES 2007](#)

[Vince Holton introduces the High Speed Bluetooth Special Issue](#)



Paul Williamson,  
Cambridge Consultants

# Progress in the World of Connected Health

By Paul Williamson, Head of Medical Wireless at Cambridge Consultants

As we enter 2010 and celebrate a quarter century of growth in cellular phone adoption, many people are now looking ahead to identify the next big wireless market. Which market will prompt the next significant jump in device shipments? The Machine-to-Machine (M2M) market is widely regarded as a contender for this title and a particular subset of this - **Connected Health** - is attracting ever-mounting interest.

With one of the largest independent wireless development teams in the world, Cambridge Consultants has a pedigree of creating 'world firsts' in wireless communications, including the healthcare sector. In this, our first article for Incisor, we look at some of the latest developments in the rapidly growing market of wireless healthcare - or as some commentators now refer to it - 'Connected Health'.

Healthcare is under considerable pressure to change. With US healthcare costs now reaching trillions of dollars, significant focus is being applied to health IT as a method to reduce the cost of care and to improve outcomes. This public and political attention has been matched by significant steps in wireless health technology. With traditional roots, applications so far have tended to extend existing modalities. However, this is now being shaken up with more of a 'consumer product' focus as companies like Apple, Google and the cellular operators position themselves to take a share of the action. O'Reilly Radar data in 2009 cited health as the third fastest growing sector for apps available for the iPhone.

Nevertheless, progress has been slowed by the lack of coordination and standardisation between device manufacturers. To address this, in 2006 the Continua Health Alliance was formed with the aim of promoting an ecosystem of interoperable health devices. The Continua



Cambridge Consultants Vena development tool for rapid creation of Continua certified devices.

Health Alliance is a not for profit alliance of medical device manufacturers, technology providers, and health service providers. Promoter members include Intel, Qualcomm, Roche, and Medtronic. The Alliance now has over 200 member organisations and has made tangible progress towards its goal.

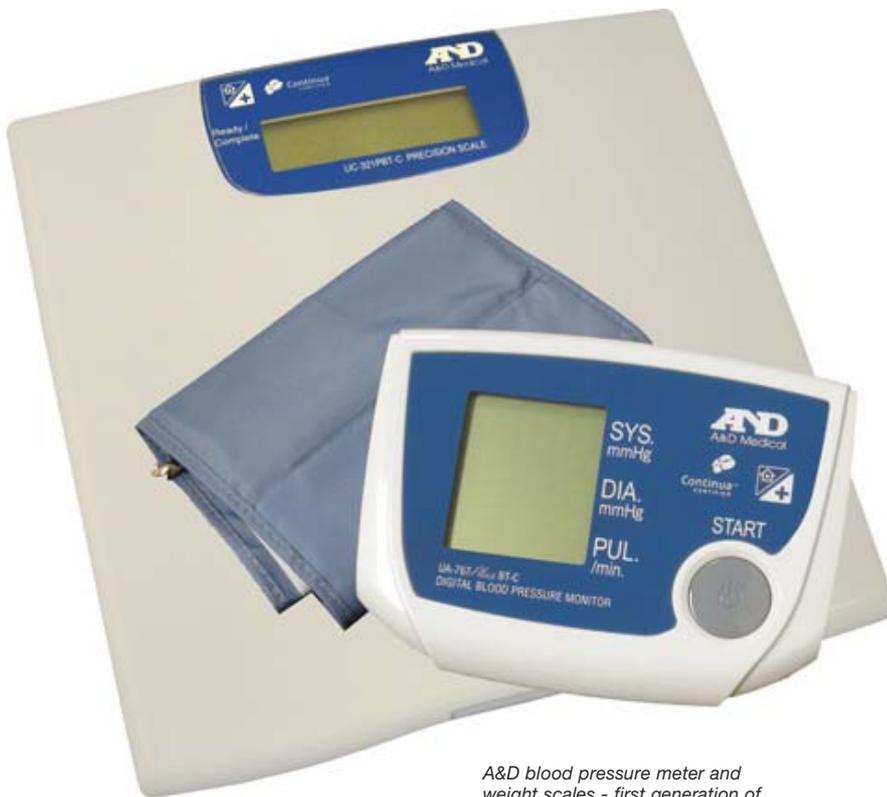
Rather than develop new standards, the Alliance has taken the pragmatic approach of setting guidelines that mandate the use of existing standards in combination to achieve end-to-end interoperability. For example, the Version 1 guidelines mandate the use of the Bluetooth Health Device Profile as the wireless transport and IEEE11073 as the data layer. This approach ensures that devices from different manufacturers can be used by the same application. In 2009 the first six

devices passed successfully through Continua's certification program.

Cambridge Consultants has been leading the way in enabling its customers to achieve Continua certification. Our Vena protocol stack implements the full Version 1 guidelines, and was first to achieve Bluetooth HDP certification. Since then it has been deployed by a number of our customers including A&D Medical, who were first to achieve product certification for both their weight scale and blood pressure meter products.

So where next for the Alliance? The Continua Health Alliance now has a number of certified devices already in the market, and more products are on their way. A major next step will be to demonstrate system roll out and





A&D blood pressure meter and weight scales - first generation of Continua certified device.

deployment in the hands of the consumer. For this to happen, the Alliance is concentrating on two major steps:

The first step involves existing telehealth services transitioning to the Continua standards. There are significant incentives for telehealth providers to adopt the guidelines, as providers will then be able to purchase devices from multiple providers, supporting a single interface which will reduce overall system cost and complexity.

The second step is to stimulate adoption of the standards in the mobile phone sector. With its selection of Bluetooth, Continua paved the way for a wide range of health and fitness services to be offered via mobile devices, and in 2010 we will see the first handsets that will enable developers to launch new services.

Beyond the immediate product launches, the Continua Health Alliance is also generating extensions to its guidelines to address high volume consumer products. These extensions exploit the introduction of Bluetooth Low Energy, and ZigBee to address in-home networks for independent living.

There is however clear evidence of consumer demand in this sector. There are now over 3,000 unique health and fitness apps in the iPhone app store. These applications are currently limited to browsing, and manually entering data. With the launch of iPhone 3.0 software, developers now have access to

Bluetooth peripherals and, in 2010, we are likely to see iPhone dedicated wireless accessories in the health and fitness space. At Cambridge Consultants we have supported this move by updating our Bluetooth development tools to support our iPhone accessory customers.

Additionally, building on our history of working with the leading medical device and pharmaceutical companies, we've also seen significant interest in the use of wireless technology for patient monitoring and for supervising treatment regimes. For example, wireless-enabled drug delivery devices enable pharmaceutical companies to extend the value of their products beyond the patient. By developing a complete 'connected health service' that offers guidance and support to the user, significant brand loyalty can be developed. For the user, receiving a complete service that includes "expert" monitoring and coaching offers the potential for better long-term outcomes. [Cambridge Consultants demonstrated this technology last year](#), and we expect to see it applied to a range of drug delivery devices in the future.

So, the connected health sector is on the verge of significant growth. Whether the solutions are based around smartphone application protocols or Continua Health Alliance standards 2010 is set to be a highly significant year for uptake of wireless health accessories.

[www.cambridgeconsultants.com](http://www.cambridgeconsultants.com)

## Snippets

### TRaC worldwide approves CSR BlueSlim PC Host Bluetooth module

Test, certification and approvals company TRaC has helped CSR plc gain worldwide approval for BlueSlim, which is claimed to be one of the world's smallest PC Bluetooth modules. Miguel Bravo-Escos, CSR's Technical Programme Manager said: "CSR appreciates TRaC's excellent work on this project and for getting our Bluetooth module qualified quickly and efficiently."

Using Agilent's N4010A Wireless Connectivity Test Set as a foundation, TRaC engineers have created a bespoke Bluetooth test system, which provides a test solution for chipset vendors, module manufacturers and system integrators.

### Lime Microsystems/Percello collaborate for femtocells

Lime Microsystems, a multi-band multi-standard RF transceiver IC company, is collaborating with Percello Ltd., an Israeli fabless semiconductor company developing digital baseband for UMTS and LTE networks, to develop a reference platform for femtocell designs. The reference platform combines Percello's PRC6xxx baseband IC, with Lime's multi-band, multi-standard RF transceiver IC, the LMS6002. It will be used to develop femtocell designs for high data rate UMTS/HSPA+ air interfaces.

### Cox demos voice & HD video streaming over 4G

Cox Communications has demo'd voice calling and high definition video streaming over wireless networks using fourth generation (4G) Long Term Evolution (LTE) technology. Cox's 4G technology and service trials utilize the AWS and 700 MHz spectrum that it acquired at Federal Communication Commission auctions in 2006 and 2008. Cox spent over \$550 million for radio spectrum licenses to support its wireless plans, which include wireless broadband. Cox conducted the 4G trials in Phoenix and San Diego and chose these markets for the advanced technology-orientation of its residential and business customers, as well as the terrain and suburban density variances of their geographies.

# Don't ask me about CES!

## But... Bluetooth finally seems to have reached ubiquity

OK, the main heading is a reaction to the fact that each year, when I return from CES, many, many people ask me to give them a snapshot of the important announcements from what is the world's largest consumer electronics show, and to give them an analysis of trends, and the directions that the wireless industry in particular is taking. Not unreasonably, the people that didn't get to CES (which is, after all, pretty much 99.9999999995% of the world's population), want to know what happened there, and what it is they need to know about in order to retain their tech credibility.

This is fair enough. As I point out (with boring monotony) to potential Incisor clients, CES is a big show, but it takes place in one little town, in one very big country and for just a few days in a year. When you are there, the show may seem busy, but when you consider how many people there are in the big wide world that don't get to go to CES, it does make you wonder at the millions of dollars that companies spend for a few square metres of carpet and flimsy walls at CES. Wouldn't an effective, Internet-based campaign reach a massively bigger, very targeted audience, and for as many days of the year as you want it to? And for a tiny fraction of the cost of shipping people into CES (where they will spend all your money on beer and hookers entertainment. Seems like a no-brainer to me, but it doesn't stop the sheep flocking to Las Vegas every year.

OK, that's enough of the sales pitch for Incisor. Back to satisfying the 'what happened at CES' thirst for knowledge. Most years I am a hopeless source of information. Why is that? It is because the IncisorTV team normally spends the whole show rushing from one pre-arranged filming job to another. I get little or no time to see the show for myself. This year was different. We agreed with the Bluetooth SIG that we would do a daily web TV show report, and although the workload nearly killed us, the end result provided short-range wireless-watchers with a good insight into developments at CES. If you haven't already seen these shows, they are still available to view at the IncisorTV web site. Here's a breakdown of some of the



items covered in each show. You can click the link for each day to take you to the movie:

### CES 2010 Day One

- Show intro
- IncisorTV interviews Mike Foley, exec director of the Bluetooth SIG, to review 2009 and the first day of CES 2010
- CES Unveiled review – the event where press and media get to preview major announcements before CES opens
- Vince Holton interviews Henry Seydoux, CEO of Parrot, as his company shows an amazing product demo combining an iPhone, a remote

control helicopter and augmented reality for a new mobile gaming experience

- Cristina Sainz, marketing director at Parrot, explains the 'Parrot by ....' concept

### CES 2010 Day Two

- What is a wireless leash? Zomm's Henry Penix tells us about the new Bluetooth product that will keep us connected with our phone
- Nokia Booklet 3G – Nokia is now in the PC business and IncisorTV provides an overview
- Bluetooth in medical and healthcare – Vince Holton interviews MedApps



- The Bluetooth SIG Best of CES awards – IncisorTV attends the party at the Hard Rock Hotel, reviews all of the finalist products and covers the main awards announcement

### CES 2010 Day 3

- Interview with APT-X, discussing the company's success at the Bluetooth Best of CES awards
- IncisorTV travels to the Continua Health Alliance pavilion and meets with companies implementing Bluetooth in the medical and healthcare sector. Continua executive director Chuck Parker explains the importance of Bluetooth – and especially Bluetooth low energy – to Continua and its members
- Alereon interview – Mike Krell tells IncisorTV that UWB is not dead and demonstrates a great app that lets your 50" TV double as a PC monitor
- Mike Foley rounds up his CES review with Vince Holton
- The show is over, Vince has his coat on, and sums up CES 2010

So, I've done a better job this year of reflecting what was happening in Las Vegas. If I had to sum up the three main general themes at this year's CES, I would say that they were 3D TV, smartphones and tablets.

### It's been some time in coming ....

But there was one other, less 'noisy' but perhaps more long-term significant observation that I made. And that was that Bluetooth, after many years of working to get there, has achieved a multi-discipline, standardised solution status that sets it alone amongst the short range wireless technologies. At the most fundamental, Bluetooth has finally moved beyond the handset/headset market. At CES, there really was a broad variety of consumer-ready products, including not only consumer-facing gizmos such as stereo speakers systems, watch phones, game consoles etc, but also an impressive selection of Bluetooth-enabled medical and health equipment displayed around the show, including at the Continua Health Alliance pavilion. Seeing Bluetooth as part of many different medical equipment solutions – and the medical industry is notoriously wary about rolling out any technology until it has been tested and

proven to the limit - means that Bluetooth is moving from the 'nice to have consumer product' category into the 'essential component of professional equipment' category.

This broad reach into widely varied categories of electronics could be an excuse to wind back the development effort, and to indulge in a bit of laurel-resting. But we all know that to stand still is, in the tech sector at least, to go backwards, and the signs are also there that the Bluetooth SIG and the member companies are doing the right things to ensure that their technology continues to lead the way. How so? Well, in the high-speed space, Motorola has made public the first tangible implementation of Bluetooth 3.0 + HS – you can see it in the [IncisorTV Day 2 show report](#). Some have questioned the partnership of Bluetooth and 802.11, and yet, watching two PC's synch up using Bluetooth, and then seamlessly switching to 802.11n technology to stream a video file from one notebook to the other, I must say that I was convinced. Like any good solution, it just worked, with no user intervention needed.

This doesn't mean that the high speed department is completely settled. Ultra-wideband is still lurking in the wings, and people on both sides of the equation – Bluetooth SIG and UWB companies – have told me that the Bluetooth/UWB discourse is still alive, as recently as at CES – see the [Mike Krell interview in this show report](#).

Then there is Bluetooth low energy. We have all heard about Bluetooth's potential in the medical and healthcare market. However, before Bluetooth low energy came along, the Continua Health Alliance and its members had a real problem making their Bluetooth solutions work for more than 2 weeks without a re-charge – a situation that was not really workable. I spent time talking to Continua's executive director Chuck Parker at CES – see the interview in the [same daily show as the Mike Krell interview above](#) – and he made it crystal clear to me that the ratification of the Bluetooth low energy standard was a real milestone as far as Continua was concerned. His main message was that Bluetooth low energy genuinely unlocks the technology's true potential for medical/healthcare and other applications requiring extended battery life.

### Vultures continue to circle

Other short-range wireless technologies will continue to try to capture some of Bluetooth's business. However, none of them, not even Wi-Fi, which has a fairly unruly structure that still feels a little like



the Wild West and which seems to prefer to proceed with a bludgeon rather than a surgical instrument (as one wireless alliance boss put it "The Wi-Fi guys are arrogant. They haven't taken it on the chin enough yet to understand that") enjoys anywhere near the multi-sector success rate that Bluetooth does. All of the others – whether we are talking ZigBee, NFC, RFID, EnOcean, Z-Wave, Coronis or whatever – are very clever technologies that are carving out their own niches. Yet they either sell in small volumes compared to Bluetooth, or are many years behind Bluetooth in their evolution.

In my view, then, with classic Bluetooth in good shape, and with Bluetooth 3.0 + HS and Bluetooth low energy bracketing the original concept and extending the potential in both directions, Bluetooth is in pretty good shape.

And that, dear readers who didn't get to CES, is the most important message that I brought back with me from Las Vegas.

Wireless Data Coordinator  
– VERIZON WIRELESS

Chief Technology Office  
– CONCRETE LOGIC

Distinguished Member of the  
Technical Staff  
– MOTOROLA

RF System Architect  
– ARTIMI

Senior Engineer  
– SAMSUNG ELECTRO-MECHANICS

Technical Director  
– EUREX COMMUNICATIONS

Short Range W/less Lead Eng.  
– FRACTUS

Senior Analyst  
– STRATEGY ANALYTICS

Chief Application Engineer  
– PHILIPS SEMICONDUCTOR

VP of Marketing & Business  
Development  
– ZIGBEE ALLIANCE

Design Engineer  
– CSR

Business Dev. Manager  
– TEXAS INSTRUMENTS

R & D Engineer  
– HEWLETT PACKARD

Director, Seamless Mobility  
– MOTOROLA

Procurement Manager  
– BENQ

Systems Engineer  
– DAIMLER CHRYSLER

Principal Design Engineer  
– PANASONIC

Director, Product Development  
– MOTOROLA

Research Engineer  
– LG INNOTEK

Software Engineer  
– DELPHI DELCO ELECT.

Corporate Strategic Planning  
– LSI LOGIC

Fellow, Office of the Chief  
Technology Officer  
– LSI LOGIC

Equity Analyst  
– HANDELSBANKEN

Senior Electrical Engineer  
– MOTOROLA

Hardware Engineer  
– GN MOBILE, GN NETCOM

Connectivity Manager  
– AMD

Principle Analyst  
– AUTOMOTIVE – iSUPPLI

Principle Engineer  
– MEDTRONIC

Digital Cellular RF Product  
Line Manager  
– ANALOG DEVICES

Senior Applications Engineer  
– MOTOROLA

Project Manager  
– SCHNEIDER ELECTRIC

Director, After Market Service  
– GN NETCOM

Director, R & D and Business  
Development  
– WEARNES TECH SOLUTIONS

Senior Product Manager  
– NOKIA

Director, Strategy & Business  
Development  
– MOTOROLA

Product Manager  
– BELKIN CORPORATION

Software Development  
Manager  
– CISCO SYSTEMS

Gen Mgr, Connectivity Div.  
– STMICROELECTRONICS

CEO  
– INNOVISION RES. & TECH.

Strategic Marketing  
– STMICROELECTRONICS

Marketing, Low Power W/less  
– TEXAS INST., NORWAY

Director Product Development  
– GENNUM

Analyst  
– CREDIT SUISSE

Grant Holder  
– TELEFONICA

RF Product Manager  
– MURATA

Sen. Procurement Mgr.  
– PLANTRONICS

CEO  
– PLENUM WIRELESS

Confidential Agent  
– PHILIPPINE BUR. OF IMMIGRATN.

Software Engineer  
– SENNHEISER COMMUNICATIONS

Design Engineer  
– TRIMBLE NAVIGATION

Executive Director  
– OPEN SPECTRUM FOUNDATION

Software Engineer  
– SONY ERICSSON

Development Engineer  
– PARROT

Security Engineer  
– U.S. DEPARTMENT OF STATE

Director  
– WIQUEST

President & CEO  
– USA SIGNAL TECH.

Technical Manager,  
Bluetooth Qualification Board  
– SONY ERICSSON

OSC  
– U.S. NAVY

President  
– TIBA MEDICAL

Lecturer  
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R & D Project Leader  
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UWB Marketing Manager  
– STMICROELECTRONICS

Senior Engineer  
– SAMSUNG ELECTRONICS

Technical Strategist  
– LENOVO

ASIC Development manager  
– MICROSOFT

Senior manager  
Audio/infotainment architectures  
– VISTEON CORPORATION

Senior product manager  
– BELKIN

Principle engineer  
– PLANTRONICS

Marketing engineer  
– TEXAS INSTRUMENTS

Senior systems engineer  
– GN NETCOM

Senior system architect  
& standardisation manager  
– NXP SEMICONDUCTORS

R&D engineer  
– FRANCE TELECOM

## WOULD YOU LIKE TO TARGET THE PEOPLE ON THIS PAGE WHEN MARKETING SHORT RANGE WIRELESS PRODUCTS, APPLICATIONS OR SERVICES?

Listed on this page are just a few recent Incisor subscribers, added to a database built over 8 years.

- Incisor covers Bluetooth, Ultra Wideband, ZigBee, Wi-Fi, RFID and NFC.
- Read by an estimated 25,000 readers
- At 1500+ companies.

Incisor is not a consumer publication, and therefore doesn't claim to be read by hundreds of thousands, or even millions. We address those people all over the world that are seriously interested in wireless technology – the decision makers and technology influencers.

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– EC JOINT RESEARCH CENTRE

Director Product Development  
– GENNUM

Analyst  
– CREDIT SUISSE

Patent Engineer  
– GN STORE NORD

Researcher  
– EC JOINT RESEARCH CENTRE



# Spotlighting Bluetooth 4.0 – May the fourth be with you ...

by Dean Anthony Gratton

Here I am, January 2010 – a belated happy New Year to everyone.

I'm returning to my keyboard with such enthusiasm; a keenness, if you like, to get back to a regular and monthly routine to steady my fingers and to forge ahead with my first feature of the new year! Eeesh, I have to admit I'm feeling a little rusty! Come on Dean, resurrect those brain cells and dust off that thesaurus! I have a new story to tell. One small confession though; I should have been writing my new book (sigh), so I really don't have an excuse to become rusty at all. Never mind! Maybe there's another reason? Another excuse to hear the whooshing of those deadlines passing by? Okay, perhaps I shouldn't have over indulged in a Christmas and New Year of shameful and bountiful quaffing of red wine – I love wine, but it doesn't love me! Maybe I should just stop drinking? Okay, so it doesn't matter, as I'm pleading guilty to drinking a glass of red wine (or two) whilst tackling this feature!

## A new beginning

Anyhow, let's start forging ahead with this feature. It's a new year, 2010! You probably already know that, but it's as if 2009 never happened and I just wanted to make sure that I hadn't pickled all of my brain cells! I have really missed doing this and, do you notice the style change? I just felt it was necessary. I wanted to shake off that book-writing mentality; you know, the second person stance, 'we will,' 'you shall,' and 'let's' – it's so authoritative and cutesy, but it does have its place (in the right medium of course!). I wanted to inject a lot more of me into this, albeit with a lengthy straw inserted into the bottle head of that marvellous Shiraz and with the debut album from the Noisettes (Wild Young Hearts) playing in the background. Okay, now I'm ready!

So, I see Vince has been gallivanting in Las Vegas (it's alright for some! I'm stuck here in Blighty, well, to be more precise, Wales) – I've never seen so much snow! On the

other side of the pond, Vince has been at the CES event in Las Vegas and I have no doubt that this month's Incisor issue is peppered with great news from the event. But, something that caught my attention was the Bluetooth Special Interest Group (SIG) which seemed to steal the show with its Bluetooth SIG CES Best Award. The daily podcast update from Incisor.tv showcased some great new products and, of course, a snazzy interview with the SIG's executive Mike Foley. I knew the style change would be good, as it cheesily and neatly brings me to my feature of the month (I'm now avoiding any side glance to camera in token homage to Harry Hill, ITV1). Okay, now I know Vince is going to make an Editorial comment here, as the reference to the comedian is too British! But hey, it's Harry Hill, he's famous!

## Bluetooth jumps onto the green bandwagon

Prior to my over indulgent Christmas and New Year and yes, I have already confessed to my consumption of obscene quantities of red wine, I caught a story that

aroused my eagerness to start tapping the keyboard, but I knew the next Incisor issue would be published late January (something to do with this CES thingy-ma-jig). So, I had to hold off the wireless shenanigans of the Bluetooth SIG and await the New Year.

What grabbed my attention was the announcement of a new Bluetooth core specification, namely, Bluetooth v4.0. Actually, it's an evolutionary step for the standard, as it adopts low energy wireless and, what's more, it's touted that a mere coin-cell type battery is all that is needed to power new generation products using the new specification. According to the Bluetooth SIG's website (bluetooth.org) the new standard also boasts a number of enhanced features, to include the use of ultra-low peak, average and idle mode power consumption; multi-vendor interoperability and extended range. Admittedly, some of us have lost count of Bluetooth's incremental changes, but this announcement seems to coincide with the SIG's eagerness to revolutionise the technology and



jump onto the ever so green and trendy bandwagon that's low energy.

### Wibree's now fully fledged

I'm sure you are already aware of Bluetooth's adoption of Wibree (from Nokia), well this is the summation of the collaboration, perhaps a little over due, although it's better late than never I suppose. It may also be another coincidence, but the Continua Health Alliance ([continuaalliance.org](http://continuaalliance.org)) announced a while back that Bluetooth technology was its preferred choice for a number of new wireless wellness/health products (I dare you to say that fast after sipping half a bottle of red wine through a straw!).

The Bluetooth SIG has also provided other enhancements to the new standard, namely the offer of two types of implementation – more specifically, dual-mode and single-mode. With an existing consumer-base of Bluetooth-enabled products and with over two billion chipsets in circulation, any changes to the standard have to be offered with backward compatibility in mind. In other words, two billion chipsets can't be thrown away and let's sing the mantra 'we'll start all over again!' I dare say, if the Bluetooth SIG did that, then it clearly wouldn't be popular!

### Dual-mode and single-mode implementations

I know what you're asking; what about Bluetooth v3.0 high-speed (HS)? Well, it hasn't been forgotten. Incidentally, at the CES event, Motorola demonstrated a high-speed connection utilising 802.11n using the Alternative MAC/PHY (AMP) layer. Now, to overcome disbanding those two billion chipsets and to offer consumers and manufacturers the choice of both high-speed and low-power, new silicon will inevitably appear, supporting a dual-mode implementation. In essence, dual-mode provides the backward compatibility for legacy devices as well as supporting the new low-power feature set of the Bluetooth v4.0 standard. The enhancement enables a new generation of products to intelligently determine which scheme to use, whether it's high-speed for large data transfer or low power for a host of new applications. The Bluetooth SIG describes this as 'Classic Bluetooth-enabled devices with new capabilities'.

On the other hand, a single-mode implementation allows a dedicated low-power operation for devices that have been specifically architected for ultra-



low-power idle-mode, using a light-weight link layer. The premise here is that manufacturers will create new silicon, which will be dedicated to low-power products and devices. In short, the standard already relies upon a solid foundation of the Bluetooth architecture, but the new standard offers enhancements to enable manufacturers and product designers to use the low-power scheme for devices such as home control, automation and security. And, let's not forget a host of medical devices too, where the Bluetooth SIG and Cambridge Silicon Radio ([csr.com](http://csr.com)) have devised a new Bluetooth profile, namely the Health Device Profile. Indeed, the Bluetooth SIG has made a concerted effort to optimise data transfer using shorter data packets. With a light-weight link layer, the host controller has been given greater autonomy in terms of determining when it should sleep during idle states for longer periods and its sleep pattern is only interrupted when the controller needs to perform an action. I think I already mentioned the increased range, but now low energy Bluetooth can reach up to 100m – I presume this range is in an optimum environment, of course! What's more, the Bluetooth SIG recognises the importance of wireless security and, as such, offers stronger encryption and authentication of data payloads with the use of full AES-128 encryption.

### What will set Bluetooth 4.0 apart from other low-power technologies?

It seems there is an abundance of technologies all offering the green factor.

Of course, the likes of ZigBee, Z-Wave, EnOcean and DASH7 have been offering it for some time now, that is, the ability to support low-power ecosystems. But how will the Bluetooth SIG distinguish itself from just another low-power green technology? I don't think I can deny the opportunity here as, with the plethora of other low-power technologies, there must be an inevitable demand. Perhaps, the Bluetooth SIG has simply reacted to the market, although I think it has already made a huge step in the right direction, following the recent announcement from the Continua Health Alliance.

I suppose the only part of the standard the Bluetooth SIG needs to finish off, is its high-speed offering. The notion of an AMP architecture is indeed ingenious, but I don't see Bluetooth relying on a Wi-Fi connection to sustain its high-speed offering on a long-term basis. The SIG will need to incorporate its own high-speed wireless solution, as Wi-Fi always comes into criticism for its power hungry and application overkill. The Bluetooth SIG hasn't become stagnant either, as it's already reviewing new alternatives and the rumourmongers seem to suggest that 60GHz may be up for grabs!

No way! You'll never believe what I have just seen: as I'm tapping at the keyboard and coming to the end of that bottle, an email from a reliable source informs me that Ultra-wideband might just be on the Bluetooth roadmap after all – well, I suppose we will just have to wait and see how that exactly manifests itself!

### Until next month ...

So, that's it – that's all from the rambling and somewhat anesthetised mind of Dr G this month. I suppose I'd better crack on with my book, maybe with a ferocious need to avoid those whooshing deadlines. I will also endeavour to put aside the Shiraz in favour of high-speed caffeine and wish you all a happy and prosperous new year.

### About the Author

*Dr Dean Anthony Gratton is a bestselling author, writer and new technology visionary. He has authored several patents, contentious articles and a number of bestselling books on wireless technology. He has worked within the telecommunications industry for over sixteen years and provides consultancy to a number of high profile companies.*

*You can contact Dean at [incisor@deangratton.com](mailto:incisor@deangratton.com) and follow him on Twitter @grattonboy, but you can read more about his work at [www.deangratton.com](http://www.deangratton.com).*

# The price is right - or is it?

## Is Bluetooth pricing restricting the market?

By Vince Holton

Does your jaw ever drop at the price you are being expected to pay for things? Mine does, and especially because prices for consumer goods, ranging from a pint of milk, to a TV, to a car, seem to march unstopably upwards, while my income has been static or falling for as long as I can remember (cue tears, please).

Like most guys, I have been a car nut for most of my life, and so one of the bellwethers for my assessment of pricing policies has been the price I have to pay for my cars. This is an area of stunning disparities. From the February 2010 issue of Car magazine, which I have read for more than 20 years and whose editorial standards I have always hoped to emulate, I see that BMW thinks it is acceptable to ask me to pay £33,000 for a Mini John Cooper Works 50. £33,000!!! That is about \$53,450 for our American readers. Now, most of you will know that BMW's Mini is a modern interpretation of a very, very small car designed in the Sixties by Alec Issigonis. It was a hugely successful, classless, spacious (for its size) and inexpensive mode of transport and occupied a sector of the market currently occupied by cars like the Suzuki Swift, Toyota Yaris, all of which have list prices that start below £10,000. Where does the other £23,000 go, BMW?

The modern Mini is still built in the UK, takes up a bit more space on the road, and has a few more gizmos than the original car, but \$53,000!!! For the same price in the USA you can buy a brand new BMW 528i from a BMW dealer. How can that be? The 5-Series is two and half times as big as the Mini, has about the same multiplier more materials in it, and massively outcores the Mini for on-board technology.

And how can it be that a few pages after the report on the stupidly-priced Mini, there is a full page advert from Chrysler for the 300C, a massive, stately-looking car that has been built in the USA and shipped to the UK, and yet is being offered by the manufacturer (not, note, a discounting dealer) for a list price of £23,995 - £10,000 less than the built in the UK Mini. Again,



*BMW wants £33,000 for a mini car!*

the 300C is a full size saloon car with a leather interior, dual-zone climate control, Sat Nav, MP3 and so on. It has established a place in our market as a bit of a poor(-ish) man's Bentley. How does this pricing thing work?

And don't start me on the fact that Britain's GM outpost - Vauxhall, provider of basic transport to sales reps for as long as the sun has been rising - now charges £22,000 (\$35,640) for a 1.7 litre Diesel-engined Astra. The Astra, for those that don't know it, is a small hatchback. And Volvo wants us to pay £39,000 for an electric C30, which is no over-blown SUV, but another small hatchback.

What? I say again - what????

### **So here's the point**

And why on earth am I raving about this in Incisor (finally, you say, he gets to the point)? Well, it is because for the last few

months I have been travelling the world talking to consumers about Bluetooth. Let us set aside just for this minute any issues over set-up, interoperability, ergonomics, and even fashion. Overall, with later Bluetooth silicon now populating the devices that consumers are buying, that situation is improving. However, one message that has been universal and which continues to be heard as loudly as ever has been that consumers want Bluetooth to be cheaper than it is. And you can see their point. Let's pick a good quality Bluetooth headset - the Jawbone Prime, for example. That sells for £99 at my local Apple store. A Plantronics Voyager PRO sells for £81. Go for a bit of luxury and a Bang & Olufsen EarSet 2 sells for £200 here in the UK and \$350 in the US! The B&O example may be a bit extreme, as the company has a long-established reputation for selling beautifully styled, technically competent but ridiculously over-priced gear, but the others are examples of good quality Bluetooth headsets of the type that





**Both of these items cost circa £100. Er ...**

provide the sort of Bluetooth experience we would like consumers to have. The sort of experience that does away with a lot of the set-up, interoperability, ergonomic, and fashion issues that have littered Bluetooth's path to greatness.

Some would say that £99 for the Jawbone is not a lot of money, and if you work in sales and marketing in the electronics industry you probably spend your life justifying the cost of the devices your company produces. But put yourself in the place of the average, over-stretched consumer. They look at what is unarguably a very small piece of electronic equipment. And then they look at the price tag. Then they mentally put this piece of gizmo-wizardly alongside the 15" flat panel HD TV with built-in Freeview tuner that they can buy for £109 from a top UK electronics retailer. And they wonder why the teeny-weeny Bluetooth headset costs 88% of what the TV costs. Or a full-size refrigerator also at £109, or why the little headset costs more than half of what they can buy a Nintendo Wii for.

Stick with technology gadgets and it's easy to find latest technology 802.11n Wi-Fi Access points from big name companies such as D-Link and Netgear, claiming 300Mbps throughput, MiMo technology and physically consisting of damned big cases presumably containing lots of components, and selling for considerably less than those Bluetooth headsets - £60 - 80.

If we face the harsh truth, some of these are items a consumer will desire more than a Bluetooth headset, and some he or she will undoubtedly need more. These items also score higher on the basis of perceived value - or at least kilogram's of tech per buck!

As ever, it is a tough call for the Bluetooth headset company that has poured millions into developing its products and would like to see a return on the investment. But it is more than just the headset companies that are delivering consumers the same conundrum. If you spec a BMW for 'Bluetooth phone preparation' the cost is £535. Audi's 'Mobile Phone Preparation' is £525. Gulp!

### **Sometimes, a little knowledge is a depressing thing**

Having worked in the electronics and technology industry for most of my life, I've had a semi-privileged insight into what consumer electronics products cost to make. This has caused me to furrow my brow on a regular basis when faced with a retail price that seems to bear little or no relation to the BOM cost for a particular item I am contemplating purchasing. Maintaining my relentless and probably unfair focus on the poor old Bluetooth headset, I'm aware that most of the volume manufacturers will be paying between \$1-2 for their Bluetooth 2.1 silicon. Take the middle of that range and it is about £0.92p in real money (☺). Then there is a tiny pcb, a few other components and a plastic casing. I'm ready to be deluged with better-informed estimates, but where does that put us for a total BOM cost for that £88 headset? £5? £6? Go crazy and say £10? My guess is it is nearer the lower estimate.

I sympathise with both the consumer and with the manufacturer. The consumer really struggles to know how a tiny (and if we are honest, many are cheap-looking) electronic device, which most people will feel is an item of desire rather than need, can cost so much money? The poor

manufacturers, still excited by the potential size of the Bluetooth market, wonder why sales aren't higher? They will argue that when volumes grow, so prices will come down. But volumes have grown, and Bluetooth headsets have been around for approaching ten years now, yet still a quality Bluetooth headset sells for £50 - 80.

True, there are cheaper Bluetooth headsets out there, including some perfectly good ones. But at the lower end there are still plenty of truly awful products, and consumers aren't really positioned to tell which cheap Bluetooth headsets are worth buying, and which will cause a lifetime of hassle and poor performance to rain down upon them. These are the types of headset that are prolonging the negativity that impacts on Bluetooth's overall growth potential.

There is no magic wand solution. As time goes by, early-generation Bluetooth headsets will finally be cleared from retailer's shelves. Later spec products will find their way into the hands of consumers, and the way will be clear for Bluetooth to finally become loved by consumers. In the meantime, manufacturers will continue to hold out with high prices for their Bluetooth headsets, and consumers will ask themselves: a Bluetooth headset or a TV/dishwasher/games console for the same-ish money? And the way this decision goes will not be hard to predict. Thus, one reason why headset sales aren't higher will continue to be reasonably easy to identify.

And we haven't even touched upon stereo headsets ....

# The three screens platform: integrating purses, pockets and wallets; connection to the next generation – wearable

By Stephen Wood,  
Technology Stragegist

This is the final article in a six part series discussing the convergence of the Smart Phone, Personal Computer, and Television. Each article discusses an event or technical capability which is forecast to emerge in the near future. These forecasts were developed for Incisor using new techniques in market analysis that provide a context against which Incisor readers can evaluate the value of innovations entering the market. →





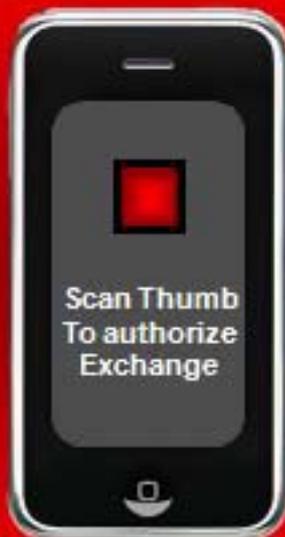
## Identification



## Financial Instruments



## Health Sensors



## Access Control



## Keys

*Integrating the contents of purses & wallets.*

The prior articles in the series talked about how the smart phone will work with the PC, the television, as part of the three screens platform and how it will operate as part of a personalization network. In this article, the discussion will cover the addition of new functionality to the smart phone platform through the integration of adjacent business models and through the connection to sensors.

Stated very broadly, the smart phone is in the process of incorporating much of the functionality found in purses, pockets and wallets. Financial instruments (credit and debit cards), keys, coupons, identification, maps, cameras, loyalty cards, and membership cards are all fair game to be integrated. Obviously, not everything that one might find in a purse will be applicable. Fuzzy hard candy, teething rings and hair spray are unlikely to find a spot on this trend line. The guiding principal is that if it is useful in a mobile context and if it is based upon data or can be translated into a data form, it is a potential target of integration.

The process of integration described by this trend line is already well under way. The first two instances are the camera/camcorder and the navigational

aid. Originally, both the camera and the navigation system (usually GPS) were stand alone devices offered for sale by somebody other than the mobile telephony operators. The process of integration made it possible for mobile phone operators to enter the market and consume the business. Manufacturers of mobile phones benefited from the integration by being able to differentiate their products. Consumers benefited by having the camera and navigation functionality conveniently available at their fingertips without the trouble of carrying an additional device.

As a first example of an adjacent market that is well positioned, but has yet to be integrated, consider keys (house, car, office, etc). A key is a token which conveys access privileges. If you rightfully possess the key, you are entitled to gain access to whatever is contained in the locked space. If you don't have the key, the locking mechanism prevents unauthorized access. Passwords, Pins and access control cards perform morally equivalent functions. They all act as logical keys to exclude unauthorized entry from protected space and data.

To envision how this integration might occur, imagine a process wherein the

key's functionality is incorporated into the cell phone. Use a model of the RF key fob that is commonly employed today for automobiles. The phone would have an ID/Key button that would initiate an encoded identification exchange. Like the key fob, pressing the ID button opens any lock to which it has been paired. A feature of this type would eliminate the possibility of physical lock picking, but would still be vulnerable to theft of the mobile phone in the same way that the key fob is vulnerable to theft. But this weakness could also be improved.

The designer of the ID/Key feature could add a capability wherein the phone attempts to verify the user physically through a biometric tool. Fingerprint scanners that are available today could do this job quite handily. Instead of using a simple button to trigger the ID exchange as was initially suggested, wiping the fingerprint scanner with a thumb or index finger could do the job. If additional security were required, the exchange protocol could include an encoded photograph of the user, heartbeat detection in the finger and other mechanisms as deemed necessary.

It would also be possible to employ the same feature to replace the ubiquitous



network logins that are required for corporate ATMs, data networks, and a large number of websites. Just swipe the fingerprint scanner and a login is accomplished that doesn't depend upon fallible memories, is not written down for the prying eyes of passers by and is not vulnerable to shoulder surfing.

If encrypted RF is thought to be too vulnerable to interception, near field communications (NFC) can be employed instead. NFC employs magnetic field based communications which has a much shorter transmission range. NFC is planned for introduction into Bluetooth and Wi-Fi systems to aid in simple association. It would be a reasonable step to expand the role of the NFC link to include an ID exchange.

Once keys have been integrated into the phone, the next target in a purse or wallet is the credit card. In a credit card transaction, the ideal solution should offer a method that can work easily over the Internet as well as when the consumer is physically in the store. Credit card companies charge higher rates for merchants who operate over the Internet because of the additional cost of fraud. Internet merchants are a target for fraud because the consumer need only present the credit card number and not the card itself. If a thief is able to gain access to credit card numbers, fraud is easily accomplished. Ideally, any mechanism that integrated the credit card would make it harder for thieves to target Internet merchants. Fortunately, the mechanism described in the previous paragraphs for keys can be repurposed to serve for credit cards as well.

The smart phone, PC or set top box would act as if it is an approved point of sale (POS) terminal. When the credit card number is authorized for use, the terminal seeks positive identification of the customer's identity. As before, the finger print reader could be used to provide that verification. By generalizing the handshake used between the smart phone and the POS terminal, several related applications can be integrated with one development effort.

Turning back to your purse or wallet for further inspiration, it is probably not long before you come upon an airline frequent flier card, a gym membership key tag, a pizza restaurant loyalty card or maybe a supermarket discount card. All of these cards have a related business model that

lends itself to integration into the smart phone. They are used to store data in a printed or symbolic form. In some cases, they contain a fixed member number that is scanned and tracked when you enter the health club or check out at the grocery store. In other cases, they are used to store information about how many pizzas you have purchased which will later be redeemed in the form of a free pizza.

Now, imagine that the RF or NFC infrastructure that was put into place for financial instruments and keys was expanded. When the initial handshake which associates the smart phone with the lock or POS terminal is executed, a query is issued about the type of transaction desired. The lock, POS terminal PC would provide a description of the data that was expected. The smart phone would then use this to decide whether to send lock/key information, credit card numbers or gym membership ID numbers.

Keys, financial instruments and membership cards are just a few examples of the adjacent markets that can be integrated into the smart phone. The point of describing these future applications is to demonstrate that the trend line is viable into the future.

To wrap up this series of articles, there is one other trend line that will be affecting the near term evolution of the smart phone. In addition to being a telephone, the smart phone is part of the evolution of computers. As part of that trend line, the smart phone is frequently referred to as a handheld computer by those folks working in the PC domain. If one were to follow the PC's evolutionary path beyond the handheld generation, the next generation is the wearable computer. If you recall the Star Trek communicator badge that allowed crew members to talk to crew members by touching a wearable device on their chest, you get a rough idea of where this generation is going. To be fully executed, it will be necessary to evolve communications, computation and batteries down to an extremely small form factor. But, it isn't necessary to wait for those technical problems to be solved in order to begin deployment of these applications in a more limited form.

As an example, imagine a watch that also reads the pulse rate, blood pressure and calorie consumption. The watch

gathers information for a limited period of time and then conveys it to the smart phone for storage or transfer over the WAN to a physician's office. By coupling the functions of the smart phone (communications and processing) with the wearable sensor (data collection), it is possible to create the functionality that will exist in the wearable generation of computing but with today's technology.

At any point where data may need to be collected and processed, there will eventually exist a very cheap and power efficient device to fill that role. Until the technology exists to create those devices, the portability of the smart phone as a communication and computation platform can be used to extract, process and transmit data collected by sensor devices whether those sensor devices are mounted on a person or in a building. For those of you familiar with Zigbee applications and motes, the beginnings of this generation are already in evidence.

In summary, the trends and events that have been described in this series of articles is intended to provide Incisor readers with a view of some of the major trendlines that are affecting the evolution of the smart phone. By understanding the likely future evolution of the sector, it is easier to evaluate opportunities and to understand where today's technology needs to go in order to open tomorrow's applications.

*Additional information about the three screens platform and other upcoming market events can be found at [www.mappingthewhitespaces.com](http://www.mappingthewhitespaces.com).*

*Stephen Wood has spent the last eight years developing a series of behavioural models which explain the behaviour of high tech markets and which provide insights about upcoming events. These models provide the basis for the projections described in this series.*

*Additionally, Stephen has spent the last twenty years doing market analysis and product management in PAN, WAN and LAN technologies. Most recently, he held the role of President for the WiMedia Alliance in UWB personal area networking. Stephen's website at [www.mappingthewhitespaces.com](http://www.mappingthewhitespaces.com) discusses his models and forecast.*

*He can be contacted at [wood.stephen@verizon.net](mailto:wood.stephen@verizon.net)*



# Sport and fitness equipment adoption - a marathon not a sprint!

IMS Research has been looking at the fitness and sports equipment industry, and suggests that a trend is emerging. Not only are professional sportspeople using sports performance monitors and sensors, but the general public is also seeking to enhance their experience of physical activity with such devices. There are opportunities for mass consumer sales of heart-rate monitors, speed and distance sensors, speed and cadence sensors, foot pods and many others.

Wireless technologies such as 5kHz, ANT, Bluetooth, Bluetooth low energy, GPS, ZigBee, NFC and Wi-Fi low energy are all contenders to be the front-runner for specific devices. However the playing fields aren't necessarily even, as Filomena Berardi, a market research analyst at IMS Research, and author of a recent report: "Wireless in Sports and Fitness Equipment", noted.

GPS, for example, has already created quite a niche in a variety of outdoor sport devices, and is now used by runners, golfers, cyclists, hikers and even weekend sailors. GPS can be used for tracking, speed and distance and even as a compass. Furthermore it can be used in conjunction with another wireless technology like Bluetooth, Bluetooth low energy or ANT, to stream data back to host devices like notebook PCs and cell phones. However the main issue remains that GPS is extremely power-hungry for certain sensors.

Other than GPS, consumers can currently purchase ANT-enabled heart-rate monitors, foot pods, pedometers, cycle computers and other devices. ANT for a very long time was the key wireless technology in sports and fitness devices. However, since the emergence of Bluetooth low energy, the industry has questioned whether indeed ANT will still lead the field.

Berardi suggests that Bluetooth low energy has been making a lot of claims that it will take wireless communication in sports and fitness to mass adoption. There is no doubt that being a standard makes the claim somewhat stronger; it also has the backing of many companies, and an established ecosystem. Simply by default it will



penetrate the host devices overnight. So Bluetooth low energy might seem like a safe bet.

However, says Berardi, it has also been argued by many in the industry that ANT isn't out of the running just yet. First, ANT is already found in sports and fitness products, where it has focused. Being an open standard means it could bring components to market fast.

Backers of its rival contend that, in the end, standards always win. So for ANT to keep in front, it needs to get over this hurdle. ANT has already announced that it is no longer sole-sourced, a step in the right direction. Furthermore there are talks of the possibility of incorporating ANT in multi-chip protocols to overcome the issue. However, from an IC supplier's perspective, would the benefits of adding ANT outweigh the cost of a combo development? The odds seem stacked up against it.

However, until Bluetooth low energy is incorporated into sport and fitness devices, Berardi believes that one can merely speculate which technology will be the wireless winner.

One thing that is clear is that 5kHz technology will run out of steam. 5kHz has been used in gyms for a number of years for heart-rate monitoring, and consumers are able to connect their monitors to gym equipment that are 5kHz-enabled. However, it is believed to be a poor performer; gym equipment suppliers are looking for a better option to overcome the

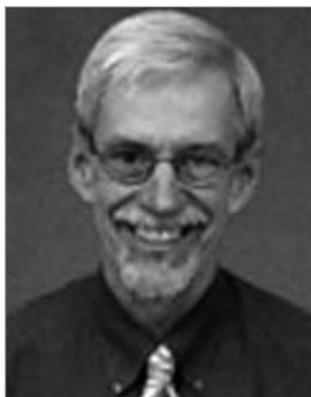
problems of 5kHz such as cross-talk, poor range and poor pairing.

Gym equipment suppliers are keen to get more users to connect to their equipment whilst working out. They too are worried that ANT might not have the staying power for a long race. Many suppliers have said that it might just be easier to use Bluetooth low energy, as users could use their cell phones, sports watches or other personal devices. Essentially, gym equipment suppliers are constrained by what personal devices their customers bring into the gym. These peripherals will drive the market, and they will simply respond. In spite of this, they anticipate that it will take at least 3 years before a prevailing consumer technology will be widely used in gyms.

Other wireless candidates like ZigBee and low power Wi-Fi are considered to be out of the running for now. ZigBee is currently targeted mainly at industrial applications and therefore considered unlikely to play a large part in sports-performance monitors. For low power Wi-Fi, it is considered too early to say, but it might offer some benefits.

This is all well and good, Berardi concludes, but against all these wireless contenders there is yet one option, that threatens to shatter all dreams of mass short-range wireless adoption – the smartphone. If there are smartphone, independent, applications for sport and fitness, why should the public buy the other special devices? If they don't, then the "wireless winner" might just be an "also-ran".

# low energy wireless news



## ZigBee Retail Services - coming to a store near you

The ZigBee Alliance (ZBA) has started development of ZigBee Retail Services, which is a new standard focusing on the retail experience from point-of-manufacture to point-of-sale. This is expected to utilize ZigBee's existing profile capabilities.

The ZBA tells us that the Retail Services public application profile can be used across the retail sector, and predicts that the retail market will see a significant improvement in quality and supply chain management and efficiency, in addition to enhanced customer satisfaction. It will define applications for mobile terminals and offer plug-in modules. The profile will define a standard methodology for delivering a variety of services, including: in-store information, location based services, retail at home, retail assistance device, health care, supply chain management, regulatory compliance and energy management .

"ZigBee Retail Services will leverage ZigBee's many public application profiles as well as define new capabilities to create easy-to-use tools for consumers that make every day shopping easier, more interactive and enjoyable. Retailers will be able to increase quality and improve overall efficiency of operations while delivering an innovative consumer experience" said Bob Heile, chairman of the ZigBee Alliance.

A number of companies are apparently engaged in developing the ZigBee Retail Services Standard.

### ... and shows ZigBee remote control profile

In addition to invading the retail world, ZigBee wants to be on your sofa too. The ZigBee Alliance has announced the

availability of ZigBee Remote Control, a new standard for remote controls. ZigBee Remote Control is the first public application profile designed specifically for use with the ZigBee RF4CE specification announced earlier this year.

ZigBee-enabled remote controls will apparently free consumers from pointing the remotes at devices (such a chore), offer flexible control from nearby rooms, enable two-way communications between the remote and device, plus deliver improved remote battery life for a variety of consumer electronic (CE) devices like HDTV, home theater equipment, set-top boxes and other audio equipment. This is, of course, all territory that other technologies like Bluetooth low energy are looking to own.

"ZigBee Remote Control offers electronics manufacturers a global standard to simplify control of a wide variety of CE devices and improve their customer experience," said Bob Heile. "Consumers will enjoy new conveniences that give them more flexibility in the way they use their CE devices for years to come."

The Alliance says that the Remote Control profile will give CE manufacturers a defined standard to create interoperable products offering advanced communications between devices and remote controls, regardless of manufacturer. The profile is currently available to all ZigBee Alliance members.

It will be interesting to see which technology wins the war to replace IR in the domestic remote control. Presumably, if there is any desire to roll out apps that benefit from an ability to access the big wide worldwideweb at some point in the transaction, a technology that connects to a smartphone would have a bit of a head start? Which feels more like Bluetooth than ZigBee.

All comments welcome!

## Wireless occupancy sensor range expands

Leviton Manufacturing Company has expanded its line of commercial wireless occupancy sensors with its LevNet RF wireless energy management devices. The line of self-powered, eco-friendly devices integrates Leviton's performance and design features with technology from EnOcean. Once installed, LevNet RF devices can be used in virtually any commercial retrofit environment to control energy consumption and reduce a facility's carbon footprint.

"The introduction of this latest generation of LevNet RF products has established Leviton as the leader in wireless, self-powered lighting controls," said Richard Westfall, VP/GM of Leviton Lighting Management Systems. "LevNet RF is the ideal solution for adding lighting controls to existing commercial structures."

LevNet RF wireless control devices meet a wide range of application requirements in addition to occupancy detection. Devices can be used for single-pole On/Off switching, multi-location switching, HVAC and motor control. Accessories such as an RS-232 Signal Box Data Interface and Signal Strength Meter extend the functionality of the devices.

LevNet RF self-powered transmitters do not require external power and there are no batteries or components to replace or maintain. Devices are interoperable and can interact with other devices on the LevNet RF wireless network.

The LevNet RF Key Card Switch signals a room's electrical and HVAC controllers to automatically turn lights off and set-back the HVAC system when guests leave their rooms. It turns lighting back on and adjusts temperature controls when guests re-enter using the Key Card. LevNet RF transmitters and receivers can send and receive signals from 50-150 feet in range.

# low energy wireless news

## NFC Forum announces new specs

The NFC Forum has announced the adoption and release of the Logical Link Control Protocol (LLCP) specification, which supports bi-directional communications between NFC-compliant devices. The organization also announced the new NFC Signature Record Type Definition (RTD) candidate specification, which defines how to digitally sign data records in NFC Data Exchange Format (NDEF) messages.

Formerly a candidate specification, the adopted LLCP technical specification defines an OSI layer-2 protocol to support peer-to-peer communication between two NFC-enabled devices. This is essential for any NFC applications that involve bi-directional communications, such as the exchange of electronic business cards, the transfer of a Web URL from one phone to another, or the initiation of Bluetooth communications. The specification defines two service types, connectionless and connection-oriented, organized into three link

service classes: connectionless service only; connection-oriented service only; and both connectionless and connection-oriented service. The connectionless service offers minimal setup with no reliability or flow-control guarantees (deferring these issues to applications and to the reliability guarantees offered by ISO/IEC 18092 and ISO/IEC 14443 MAC layers).

LLCP is a compact protocol, based on the industry standard IEEE 802.2, designed to support either small applications with limited data transport requirements, such as minor file transfers, or network protocols, such as OBEX and TCP/IP, which in turn provide a more robust service environment for applications. The NFC Forum told Incisor that the LLCP delivers a solid foundation for peer-to-peer applications, enhancing the basic functionality offered by ISO/IEC 18092, but without impacting the interoperability of legacy NFC applications or chipsets.

The Signature RTD candidate technical specification helps users verify the authenticity

and integrity of data within NDEF messages by specifying the format to be used when signing single or multiple NDEF records. It defines the required and optional signature RTD fields, and also provides a list of suitable signature algorithms and certificate types that can be used to create the signature. It does not define or mandate a specific Public Key Infrastructure (PKI) or certification system, nor does it define a new algorithm for use with the Signature RTD.

"For NFC to succeed globally, it is essential to provide a means to verify the authenticity of data in NDEF messages and to ensure smooth interoperability with earlier NFC implementations and existing contactless infrastructure," said Koichi Tagawa, chairman of the NFC Forum. "These two specifications provide these capabilities, giving NFC developers both the tools and the confidence to create solutions that can succeed globally."

The Signature RTD specification remains a candidate for final release pending feedback from NFC Forum members and other standards organizations.

# wi-fi / high speed wireless news

## Wireless laptop to HDTV the "killer app" of Wireless USB

Wisair is one of the remaining companies developing Ultra-wideband and Wireless USB solutions, and tells Incisor that over 10 consumer-electronics vendors are now offering "Wireless laptop to HDTV" products using its WSR601 CMOS single chip. These products allow you to wirelessly watch any laptop content and any Internet web site on your HDTV.

Wisair's customers offering the wireless

laptop to HDTV products include Source R&D (Warpia), Lenexpo (Atlona) and Cables Unlimited in the USA, Olidata, Digicom, XEL (Q-Waves) and More Monitors in Europe. Other Wisair customers offering Wireless USB solution include Fujitsu, Hama and Display Solutions in Europe, InFocus in the USA and Witech in Korea.

And you can buy these products today, according to Wisair, which says that they are now available in online stores and retail chains, such as Fry's, TigerDirect, Amazon, PC World, Staples, Buy.com, Dell.com, Dixons and others, with price range of \$129-\$149 (USA), 109-119 Euro (Europe) and 99£ (UK), for a complete wireless laptop to HDTV set.

Wisair has apparently shipped 300,000 units of its CMOS single chip in the past year and says it is already seeing a sharp incline in its order intake for 2010. Wisair predicts that this year is expected to be the booming year for Wireless USB, with the wireless laptop to HDTV connectivity being the clear killer app.

Interestingly, Alereon, another UWB company, demo'd such a solution at CES ([see Day two show report](#)), and was also talking about a "sub-\$200" retail price point. Alereon's OEM customer was due to start shipping by March, and so maybe these UWB-based products will really start to find their way into our homes.

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# wi-fi / high speed wireless news



## GefenTV Wireless for HDMI 60GHz ships

If it is trying to have a foot in each camp for wireless TV streaming, Gefen must have grown more than two legs. The digital connectivity solutions provider tells Incisor it is shipping its GefenTV Wireless for HDMI 60GHz extender. This sender/receiver system is the fourth wireless video connectivity product from Gefen. It joins three other wireless products already shipping: the GefenTV Wireless for VGA; Gefen Wireless for HDMI UWB; and GefenTV Wireless for HDMI 5Ghz extenders.

The GefenTV Wireless for HDMI 60Ghz employs multi-antenna technology from Sibeam that enables HDMI extension supporting full HD resolutions at 1080p. This is the first wireless solution from Gefen that is uncompressed at the 3Ghz bandwidth, making it suitable for applications like gaming. Multi-channel audio is delivered alongside the video with support for many HDMI v1.3 features.

Gefen suggests that gamers will appreciate its low latency, and its ability to deliver vibrant resolutions with multi-channel audio in the HDMI format. The system apparently also works well using a computer with DVI connections. The system provides one-to-one signal transmission of HDMI up to 30 feet (10 meters) in distance, so it is suitable for in-room applications. Gefen's Wireless for HDMI 60Ghz extender comes with HDCP compliance, support for CEC protocols, an RS-232 port and an IR remote for turning power on/off.

## SiGe expands W-LAN and Bluetooth product range

SiGe Semiconductor has introduced the SE2600S single chip integrated front-end



module (FEM) with a Bluetooth port.

The SE2600S is suitable for applications such as cellular handsets, digital cameras, personal media players, personal digital assistants as well as WLAN/Bluetooth combination modules for smartphones. The device integrates a 2.4 GHz SP3T Switch and a low noise amplifier with bypass mode in a CSP package. It is capable of switching between WLAN RX, WLAN TX and Bluetooth modes.

The SE2600S also features integrated DC blocking capacitors, has a low Bluetooth port loss of only 0.5 dB and its receiver provides 1.8 dB Noise Figure and 12 dB gain.

Commenting on the new device Sanjiv Shah, Director, Product Marketing, WiMAX & Embedded WLAN at SiGe said, "We developed the SE2600S specifically to complement WLAN chipsets with integrated WLAN Power Amplifiers (PAs) that target fast-growth WLAN-enabled mobile terminal applications. We are pleased that with the introduction of the new SE2600S SiGe has delivered a solution that addresses the industry-led requirements for a highly integrated, small footprint solution for chipsets that target some of the most popular new consumer electronics devices".

## Atmel & H&D Wireless deliver embedded Wi-Fi

Atmel says it is collaborating with H&D Wireless to deliver an IEEE802.11b-g Wi-Fi solution for Atmel's 32-bit AVR microcontrollers. In this collaboration, H&D Wireless will provide the SPB104 Wi-Fi extension board which is connected to the AVR32 UC3 evaluation kits through the SD card socket. The two companies claim that the collaboration results in the industry's most power efficient Wi-Fi solution, with an overall power consumption five times lower than any other similar solution on the



market. Here at Incisor we wish that companies wouldn't make these virtually impossible to substantiate claims in their press releases, but we doubt that this practice is likely to be dropped in the near future.

"Many customers are demanding embedded Wi-Fi solutions in their 32-bit MCU applications," said Haakon Skar, product marketing director for AVR32 at Atmel Corporation. "To address these needs, Atmel has partnered with H&D Wireless to enable Wi-Fi capability in Atmel's 32-bit AVR MCUs. To enable Wi-Fi capabilities of the AVR32 UC3 microcontroller, a customer only needs an ATEXTWIFI evaluation board, an AVR32 EVK1104 or EVK1105 evaluation kit, and to download a free AVR32 Software Framework 1.5 version which includes all Wi-Fi drivers and the full TCP/IP stacks. With picoPower® technology, AVR32 is the world's most energy efficient microcontroller on the market, using less energy in all active and standby modes than other competing products."

H&D Wireless' modules offer Wi-Fi capability for the 802.11b-g spectrums with a throughput of 1 to 54 Mbps. The device offers a 150 uW sleep power consumption, 2.4 years of battery life, 220 mW RX power and an interface compatible to SDIO and SPI. In addition, the RF power output is 7-8 dB higher than the average on the market at +17.5 dBm.

# events



DATE	EVENT	LOCATION	NOTES	LINK
Feb 3 - 4 2010	DECT World & CAT-iq 2010	NH Barbizon Palace, Amsterdam, The Netherlands	-	<a href="http://event.dectconference.com/">http://event.dectconference.com/</a>
Feb 15 - 18 2010	Mobile World Congress 2010	Barcelona, Spain	-	<a href="http://www.mobileworldcongress.com/index.htm">http://www.mobileworldcongress.com/index.htm</a>
Mar 2 - 6 2010	CeBIT	CeBIT Messe, Hannover, Germany	-	<a href="http://www.cebit.de/">http://www.cebit.de/</a>
Mar 22 - 25 2010	International CTIA Wireless 2010	Las Vegas, Nevada, USA	-	<a href="http://www.ctia.org/conventions_events/wireless/">http://www.ctia.org/conventions_events/wireless/</a>
April 1 2010	Connected Home	Houten, The Netherlands	-	<a href="http://www.connectedhomeevent.eu/uk_index.html">http://www.connectedhomeevent.eu/uk_index.html</a>
April 19 - 22 2010	Bluetooth SIG All Hands Meeting	Fairmont Olympic Hotel, Seattle, USA	-	<a href="http://www.bluetooth.org">www.bluetooth.org</a>

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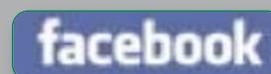
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Hampshire Gate  
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Contact: Vince Holton  
Email: vholton@incisor.tv  
Tel: +44 (0)1730 895614

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