DECT FORUM

# DECT Today

The Success Story Continues

Video enabled Issue 2 October 2014


## INCLUDES PREVIEW OF 2015 DECT CONFERENCE

**FEATURES:**

| | |
|---|---|
| **DIALOG SEMI** | – NINTENDO'S Wii U WIRELESS MICROPHONE |
| **DSP GROUP** | – VIDEO OVER DECT |
| **HGI** | – RINGING IN THE ERA OF THE SMART HOME |
| **LANTIQ** | – ULE – THE RIGHT CONNECTION FOR THE SMART HOME GATEWAY |
| **PLANTRONICS** | – ANOTHER FIRST FOR DECT |
| **TRUECALL** | – HOW TO BLOCK NUISANCE CALLS |

**FROM THE DECT FORUM:**

**2015 DECT WORLD CONFERENCE – DECT AWARDS 2015**

**DECT OUTLOOK**

**DECT IN JAPAN**



**INTERVIEW WITH THE ULE ALLIANCE**

**CONTACT DETAILS:**
**Editor:** Manek Dubash
manek@manekdubash.com
**Publisher:** Vince Holton
vholton@incisor.tv

**ADVERTISING ENQUIRIES:**
**All enquiries –**
Roland Schmidt
secretariat@dect.org
Telephone: +49 89 5166 2456

DECT Today is distributed on a twice yearly basis to DECT Forum members and other interested parties.



**SUBSCRIBE TO DECT Today**

To subscribe free of charge to DECT Today magazine, please complete the form at our web site – you can use this link here. You will receive DECT Today by email twice a year as an Adobe Acrobat file at the email address submitted.

If you like DECT Today, pass it on to friends and colleagues.

They too can subscribe, free of charge. Access the DECT Today archive any time at this link.

Should you wish to stop receiving DECT Today, please use the unsubscribe option at this link.

And follow the DECT Forum on Twitter, and on LinkedIn too. The links are all below

Click here Click here

**PRODUCED ON BEHALF OF THE DECT FORUM BY:**
Click I.T. Limited
Hampshire Gate, Langley, Rake
Hampshire GU33 7JR, United Kingdom
Tel: +44 (0)1730 895614

# Heading towards a smarter 2015

**Hello, and a very special welcome to the second edition of DECT Today, the place to find out more about the DECT Forum and DECT technology.**

We've been delighted with the positive feedback we've received from the first issue and hope to build on that for the future.

Since its introduction in 1992, DECT continues to build on its stupendous record of growth, and the advent of new applications for the technology continue to take advantage of DECT's solid foundations of interference-free radio spectrum, long range, and ability to support a wide range of applications.

You will see from this issue that we are showcasing many of these applications and the vendors who developed them, as well as the hard work put in by members of the DECT Forum as we work towards our flagship event of the year – the 2015 DECT World Conference. Details of this event, and the 2015 DECT Awards, are in this issue

We look at the Japan Working Group, which is making strong in-roads into the Japanese market, and has plans to build DECT – or J-DECT as it is branded in Japan – into a highly popular standard.

Video for home monitoring is a natural application for DECT technology thanks to its lack of interference and support for HD Voice, as well its easy integration with home telephony systems. In this issue, the DSP Group demonstrates how its solution will enable new video products that measure up to our customer expectations in three critical areas: quality, reliability and cost.

The smart home is rapidly becoming a reality and here DECT also provides just the right foundation. Making a complex system simple enough to be a true benefit for consumers is undoubtedly a challenge for systems providers but chipset supplier Lantiq has built this capability into its CPE devices, integrating the latest ULE Alliance Device Protocols, and showcased in this publication.

A key element of the smart home is interoperability between multi-vendor systems, with the aim of ending the consumer's struggle to understand how a range of proprietary products work. HGI's Smart Home Task Force is setting the requirements for the smart home platform and is developing testing approaches that will enable vendors to bring smart home products to market quickly, and so create a robust, smart home ecosystem that will flourish for the benefit of many.

Also in the home, consumer control over technology must include the ability to block nuisance calls, easily and simply. In this issue, Steve Smith, Director of trueCall, gives a roundup of the different nuisance call blocking technologies that are available.

And finally – but by no means least – Avi Barel, Business Development Director of the ULE Alliance, in conversation with me gives us his view of the current state of the ULE Alliance, where it's headed, and its role in the wider world over time.

We trust you will enjoy reading this issue of DECT Today – and as ever, if you have any feedback, the editorial team would be delighted to hear your views. You never know – if enough people contact us, we may have to start a letters page...

**Manek Dubash**
Editor, DECT Today.

# Contents

## FEATURES


4 DECT OUTLOOK

6 DECT WORLD CONFERENCE AND DECT AWARDS 2015

7 DECT IN JAPAN

8 NINTENDO'S Wii U WIRELESS MIC

10 ANOTHER FIRST FOR DECT WIRELESS

11 HOW TO BLOCK NUISANCE CALLS

12 VIDEO OVER DECT

15 THE POWER TO BE

19 HOME AUTOMATION BECOMES A MASS MARKET

21 THE RIGHT CONNECTION FOR THE SMART HOME GATEWAY

22 WIRELESS AUDIO OVER DECT

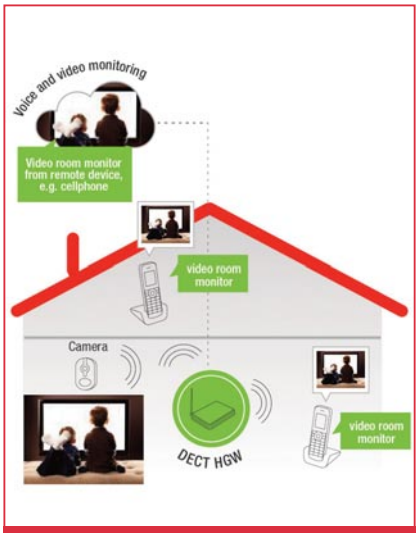
24 CLARITY IN ACTION: THE ERA OF THE SMART HOME


## INTERVIEWS


16 THE ULE ALLIANCE
Manek Dubash talks with Avi Barel, Business Development Director, ULE Alliance.


6 preview of the DECT Forum's 2015 World Conference and the DECT Awards.

16 Manek Dubash learns the latest developments at the ULE Alliance from Avi Barel.




12 DECT is not limited only to audio. Video over DECT is already here.

7 From the start of J-DECT in 2008, through to demonstrating ULE in 2014.

24 HGI is working to create a robust smart home ecosystem that can flourish to the benefit of many.

# The outlook for DECT and the DECT Forum

By Ruth Wilson, Deputy Chair, DECT Forum

**The DECT industry is today alive and kicking hard towards new initiatives. Working alongside its partner organizations, such as Cablelabs, ETSI and HGI, the DECT Forum has galvanized the resurgence of DECT technology towards new applications, opening up new markets and different technology flavours such as CAT-iq, DECT 6.0, J-DECT and ULE.**

Building on its significant worldwide spectrum coverage, the opening of new geographical markets has seen the introduction in recent years of DECT 6.0 in the US and J-DECT in Japan, and the DECT Forum continues to look towards China and India as two further potential geographies for spectrum allocation.

DECT continues to be a stalwart of the Enterprise industry and has seen extended use in business, hospitals, hotels, prisons and the oil industry with specialist telecommunications equipment covering large installations with roaming and handover capabilities inherent to its operations. Devices such as rugged handsets, headsets and paging provide a key service to the function of such industrial applications. Other innovations have seen the use of DECT technology in Gaming applications and conference audio systems for example.

The migration of the switched networks towards IP networks, promoted the innovation and introduction of CAT-iq, which enables support for key features such as HD Voice, Multi-line, Multi-call, in-field software upgradability, and a whole raft of other useful features which re-generated the cordless industry and introduced DECT to the home gateway market. Adopted by the key service providers and now established as the key voice technology for gateway integration with a large install base, this provided the perfect platform for the latest initiative towards markets such as Home Automation, Security and Climate Control. We look forward to seeing ULE as the key player in the IOT.

Building on the properties of the mature and secure DECT technology, combined with exceptional range, low cost of ownership, ease of use, and interference free operation, the DECT Forum, in conjunction with ETSI, has initiated the update of the underlying DECT standards to provide a low power variant which meets the needs of these new market applications. Such was the importance for the industry that a sister organization, the ULE Alliance, was created to focus on this technology variant.

The strength of DECT, underpinned by the initiative from the DECT Forum, leaves the expectation,that we shall continue to see healthy extensions to DECT, and look forward to the next initiatives for continued growth of the technology.

*Ruth Wilson, Deputy Chair, DECT Forum*

WE HAVE MOVED DATES! **NOW TAKING PLACE IN MAY!**

**19TH – 20TH MAY 2015**

**FREE FOR OPERATORS**

# DECT 2015 WORLD

DECT Security IoT HD Voice M2M ULE CAT-iq DECT 6.0 J-DECT connected home

## NEW FOR 2015

- **BRAND NEW AGENDA**
- **DEDICATED VIP SERVICE**
- **DECT WORLD Awards 2015**
- **NEW TOPICS** Incorporating: CAT-iq, DECT 6.0, DECT Security, J-DECT, ULE
- **SPECIAL DISCOUNTS FOR NEW COMPANIES**
- **ROUNDTABLE SESSIONS ON EACH DAY**
- **ULE PRODUCT SESSION**
- **ELEVATOR PITCH**

## KEY SPEAKERS AT THE 2014 EVENT INCLUDED

**Luca Giacomello**
Project Manager & Standards Expert
**Telecom Italia**
& Chairman, **Home Gateway Initiative**

**Bill Ablondi**
Director,
Smart Home Systems
**Strategy Analytics**

**Dirk A Böttger**
VP Terminal Management,
Fixed Line
**Deutsche Telekom**

**Xavier Nunez Balcells**
Director,
Communications at Home
**Orange**

For speaking enquiries please contact Anja Profozic, E: anja.c.profozic@informa.com

2014 SPONSORS INCLUDED

DSP GROUP · dialog SEMICONDUCTOR · RTX · Binatone · Gigaset

For sponsorship & exhibition enquiries please contact Fern Millican, E: fern.millican@informa.com

**BOOK NOW!** WWW.DECTCONFERENCE.COM

informa telecoms & media

# DECT World Conference and DECT Awards 2015

## The DECT Forum is pleased to announce the 19th annual DECT World conference, which will take place in Barcelona (Spain), Hotel Crowne Plaza (former Fira Palace) on May 19-20th, 2015.

**Whilst the location and venue will remain the same in 2015 as the previous two years, the DECT Forum decided to move the conference from the beginning of the year to a more appropriate date in May, which does not conflict with other important events in the first quarter or with any regional holidays. We hope this will encourage attendance as this more convenient date.**

The DECT Forum also announces the introduction of the first DECT World Awards for end products using the DECT technology or any of its derivatives such as DECT 6.0/CAT-iq/DECT Security/J-DECT and ULE. The awards will be presented at the DECT World conference in May 2015.

### Innovations for the Annual World Conference

The conference will provide exciting technology, market and product updates along with stimulating discussion, and will be a great place to meet key decision-makers from operators, customers, suppliers, and retailers alike.

Delegates will be able to make use of the numerous networking opportunities on offer. With some important format changes, DECT World 2015 conference is a must-attend-event for the entire industry. Some of the innovations of the 2015 conference include:

- Discount rate for members of the DECT Forum and ULE Alliance
- 50% discount for first time exhibitors
- One day conference pass
- Free attendance for operators
- Elevator pitch for ULE products
- Analyst view on the market
- Keynote from an external speaker to be announced
- Networking event with DECT Awards presentation at the venue


The organiser will also provide an optimised timeline and preparation for delegates of the conference: the networking tool and the conference brochure with all speakers and the entire program will be available already in January 2015.

### DECT World Awards

The newly introduced DECT Awards for end products will cover two categories: product innovation and product design.

For each category, the following will be awarded:

- Winner
- Runner up
- Highly commended

The winner in each category will receive a prestigious trophy, and the opportunity for a one-page promotion in the next issue of the DECT Today magazine. Awards will be presented in a ceremony on the evening of the first day of the DECT World Conference (May 19, 2014) at Crowne Plaza (Barcelona). Any company/operator with a product based on the DECT technology and its derivatives can enter. An entry fee of 250 € will be applied for any company/operator who is not a member of the DECT Forum or the ULE Alliance. There is no restriction on the number of products, which a company/operator can enter, and a company/operator may enter both categories.

### DECT World 2015 Product Innovation Award

Will be awarded the product which is considered to provide the most innovative use of the DECT technology or its derivatives. Could be for example in a new end application, or a new feature on an existing product. Innovations can be hardware or software or a combination of both.

### DECT World 2015 Product Design Award

Will be awarded the product, which is considered to provide the most interesting and attractive industrial design. Product must be based on the DECT technology or derivatives and be in production/deployment in 2014/2015. End application should include the use of voice and/or data.

Recognised industry personalities will form the pretigious jury, headed by the Chairperson of the DECT Forum Board.

Useful deadline information:

- Deadline for register of interest – November 20th 2014
- Deadline for entry – end January 2015

The DECT Forum would like to encourage members and interested companies to participate in this newly created DECT Award. We are looking forward to receiving your entries.

**Click on the video icon to watch the video review of the 2014 DECT World Conference**

# DECT in Japan
# The story so far...

**Back in autumn 2008, several companies from the Japanese telephone industry gathered in a meeting room in Tokyo. It was the start of "J-DECT", which became publicly available in Japan in October 2010, following amendments to radio laws, relevant test procedures (TELEC T-254) and the ARIB (Association of Radio Industries and Businesses) specification STD-T101.**

It was December 2010 when Japan's first DECT-compatible phone appeared on the market, at a time when most digital phones sold into the home were operating in the 2.4GHz band.

In the 3.5 years since the launch, most cordless telephones for the home - including those attached to fax machines - have been switched to DECT-compatible or with a J-DECT logo, and marketed with catchlines such as "interference-free from 2.4GHz".

In autumn 2011, Japan's DECT Forum members got together and started talking about forming a new Forum working group. The following February, we announced the Japan Working Group's (WG) foundation, with the aim of promoting "the deployment of the 1.9GHz digital cordless telephone system and its new use-cases in Japan".

The Japan WG's biggest mission for the first year was to design and register a unique "J-DECT" logo. The logo was formally registered with the Japanese patent office in December 2012 as a property of the DECT Forum, guidelines for usage were agreed, and new products with the logo appeared in stores in spring 2013. The J-DECT logo can now be found on product cabinets and packaging, manuals, catalogues and web articles branding products as manufactured or sold by members of DECT Forum, and complying with ARIB STD-T101.

We had another challenge in May 2012: it was the first time we participated at the "Wireless Japan" exhibition held at Tokyo Big Sight. It's the country's biggest event for the latest wireless technologies.

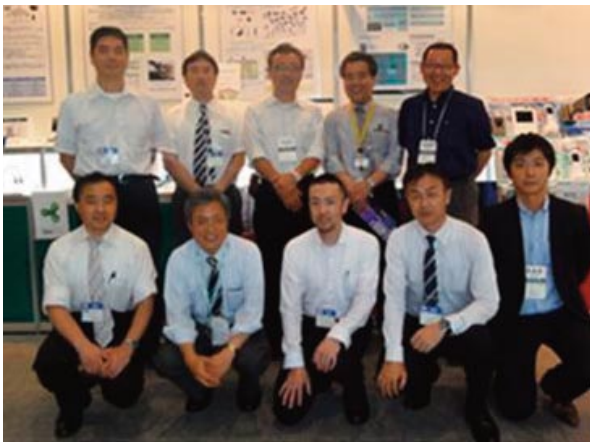
Anticipating that very few people - even wireless experts - knew about DECT, we started by explaining basic issues such as who we were, what DECT technology is and what its capabilities are, using display panels, presentation materials and recently launched products. We found most of those materials worked well - but we forgot to tell people how "D E C T" is pronounced!

In May this year, we attended the event for the third time, and focused more on presenting ULE and its applications, including a live demonstration with support from the ULE Alliance. We definitely attracted more serious visitors to our booth than in previous years, interested in doing potential business around DECT/ULE.

On the other hand, we recognised that DECT is not yet widely known as a unique and viable media for the home or the local area, especially when competing with well-known technologies like ZigBee, Bluetooth and Wi-Fi. This is particular to Japan, where the 920MHz band which opened in July 2012, has been popular – more so than 2.4GHz ZigBee – for HAN or local sensor applications due to its wider range and multiple modules being available, and there being many players in the market.

Future challenges for the Japan market or by Japan WG are:

- expansion of the DECT spectrum
- intensive promotion
- deployment of further new products / applications with DECT/ULE
- Invitation of new WG members
- introduction of more products with J-DECT logo



Above all, we need more spectrum for J-DECT, which can be achieved by using radio spectrum now allocated only for public PHS. This issue is becoming increasingly critical as more video-enabled applications - such as video door phones, wireless microphones and/or enterprise DECT cordless phones - are being launched alongside existing legacy cordless telephones, so more spectrum or QoS will be needed.

# Nintendo's Wii U Wireless Microphone

Nintendo has deployed Dialog Semiconductor's silicon to combine a number of the benefits of DECT technology and so provided Wii U Wireless Microphone, designed for its latest gaming console.

**The application requirement was clear: for end users to be able to sing in time with music – karaoke – and dance and jump when they feel like it, all with near-zero latency – under 15ms – all without the fuss and hazards associated with wired microphones. Danish partner company RTX implemented a custom software solution for Nintendo on Dialog's chipset – delivering exactly that.**

Wii U Wireless Microphone incorporates Dialog's SC14448 and the associated USB Dongle houses Dialog's SC14492. Nintendo chose DECT technology to connect its wireless microphone to its console's twin USB sockets because DECT offers just the right combination of factors.

The home environment is noisy, full of Wi-Fi and Bluetooth signals in the crowded 2.4GHz band, which mitigates against the provision of the kinds of deterministic, low-latency responses that singing your words off the screen absolutely demands.

Trials established for example that Bluetooth is vulnerable to interference, which would quickly annoy budding pop stars!

DECT's protected 1.9GHz band guarantees a lack of interference and drop-outs. This is particularly important in this application, not only because voice applications demand low latency, but also because the console's USB ports are close together, making interference-free connectivity even more difficult when using a shared radio band.

Dialog's silicon solution offers other benefits too, including impressive battery life – up to 40 hours using dry cell batteries, achieved by power management technologies, such as dynamic and granular powering down of chip components that are not currently in use, and the optimisation of radio transmit time. It also provides easy connectivity. With two mikes in use, Nintendo wanted simplicity from the user's point of view. Users only need to plug in the dongle and the mike just works, with no pairing problems.

DECT technology allows one or more microphones to be connected to the same Fixed Part USB dongle, but from a user point of view this is not preferred. Selling sets containing a microphone and a DECT USB dongle guarantee it always works immediately out of the box. When a consumer wants to use a second microphone he uses a second set and plugs the second dongle in the Wii-U.

This makes the technology implementation more complex. However, says Jesper Noer, regional sales manager of RTX Design Services: "The strength of DECT is that we can solve this and make it possible to have two Fixed Part DECT USB dongles close to each other without interference, and with very low latency. We used a fixed frequency sine wave as input for both microphones and measured no artefacts at the dongle side. If you have artefacts on the sine wave, it won't work properly.


"We made sure the dongles could co-exist within a couple of millimetres of each other. We also made sure it worked perfectly when there were people between the microphones and the dongles. The robustness of the DECT technology showed that this can be done where other radio solutions fail."

So, using low-latency audio, Dialog's technology offers interference-free connectivity, impressive battery life and reliability, and allows consumers more freedom to move, dance and jump when using the Wii U for karaoke or other games. What's more, the audio quality is just as good as a wired connection – so singers get the best of both worlds.

swissvoice

a swiss company since 1893

# Products & Solutions for

DECT

CAT-iq

ULE

accoustics

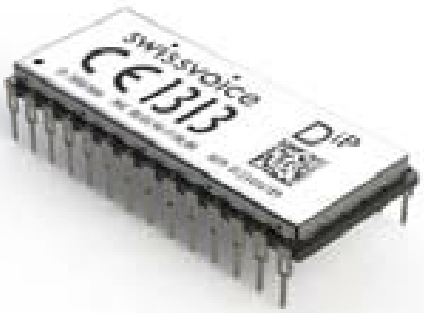
VoIP

connected home

ePure HD CAT-iq

CAT-iq

CORDLESS ADVANCED TECHNOLOGY



DECT-ULE-VoIP module

www.swissvoice.net

Contact : Guy-Louis GRAU - guy-louis.grau@swissvoice.net

plantronics

# Plantronics delivers another first for DECT Wireless

A pioneer in wearable technology, Plantronics is once again delivering a first-to-market advantage for customers. As popularity of DECT wireless headsets gains momentum across all industries – headset industry analysts predict product shipments to triple in the next 7 years — so does the need for heightened security requirements.

**Plantronics leads the headset industry with certification in new DECT Forum security standards that go beyond traditional authentication and encryption measures. Customers benefit with greater choice and flexibility in wireless headsets because Plantronics keeps ahead of dynamic technology demands to ensure robust, secure communication solutions.**

## From a garage to the moon and back

Plantronics was started by two airline pilots working in a garage, intent on developing a breakthrough in commercial aviation headsets. Together, they pioneered the world's first lightweight headset. Plantronics MS50 was the headset used in outer space by astronaut Wally Schirra for the Mercury mission, and soon after, Neil Armstrong used a Plantronics headset to utter his legendary words, "That's one small step for man, one giant leap for mankind."

Plantronics remains a global leader in audio technology today. From Bluetooth® and DECT headsets to mission-critical environments and unified communications (UC), Plantronics continues to raise the bar on matchless audio quality and innovation. Our products are used by everyone from pilots, astronauts and 911 emergency workers to 100% of Fortune 100 companies.

## Plantronics wireless excellence

With the advent of UC, wireless technologies are increasingly in demand across many enterprises. Workers use the PC as a softphone and connect using audio devices, such as headsets, to collaborate more effectively and improve

*Neil Armstrong walked on the moon and uttered the legendary words: "That's one small step for man, one giant leap for mankind" through a Plantronics headset.*

productivity and mobility. DECT wireless technology is a key attribute in accelerating headset-to-softphone usage, which analysts expect will double over the next few years.

Plantronics is at the forefront of this important trend with cutting-edge yet proven technology, quality, security and service. We have engineered some of the smallest DECT radio boards in the industry. We launched our first DECT wireless products in Europe in 2002, and in 2005, Plantronics engineer Steve Cahill was instrumental in outlining the DECT specifications for bringing the technology to the US. We were the first company to occupy the newly created UCPS band for DECT in the US, and released Plantronics CS55, CS70N and SupraPlus Wireless headset models.

*Our flagship DECT headset system, Savi 700 Series features multi-device connectivity to meet the evolving needs of enterprise workers.*

Scroll forward. Our now legendary CS500™ Series set a new wireless standard for desk phone communication with the lightest DECT headset on the market and up to 350 feet of range for stellar hands-free performance. Our flagship Plantronics Savi 700 Series DECT wireless solutions deliver intelligent multi-device connectivity, the same long-range wireless performance in an equally lightweight convertible headset.

## Securing the future of DECT tech

When the DECT Forum announced its latest security standards, we began working to adopt the recommendations for implementation within our products. The expanded security guidelines cover authentication, encryption, call setup, call progress and tear down, and include a stringent certification process for full members of the DECT Forum. Plantronics has been a member of the DECT Forum since 2002, with full membership since 2006.

Obtaining DECT Forum Security Certification requires products to meet all compliance criteria and be submitted for independent verification at an approved test lab. Plantronics' CS500 Series with the DECT Security Certification Logo and security enhancements are already available. Customers can expect the updated security-certified Plantronics Savi 700 Series products to be available a little later this year, and Savi 400 products in early 2015. For customers wishing to update existing Savi products to the same security level, we will be making the firmware upgrades available online via the Plantronics website.

For more information, please visit www.plantronics.com.

trueCall
STOPS NUISANCE CALLS

# How do you block nuisance calls?

## Steve Smith, Director of trueCall gives a roundup of the different nuisance call blocking technologies that are available.

**Nuisance phone calls are a huge problem for people all across the world – in the UK they account for over half the calls that some people receive. They may just be an annoyance, or they may bring danger – calls from criminals attempting to scam or defraud. In recent years there have been huge advances in the technology available to block nuisance calls, and this is now in its third generation.**

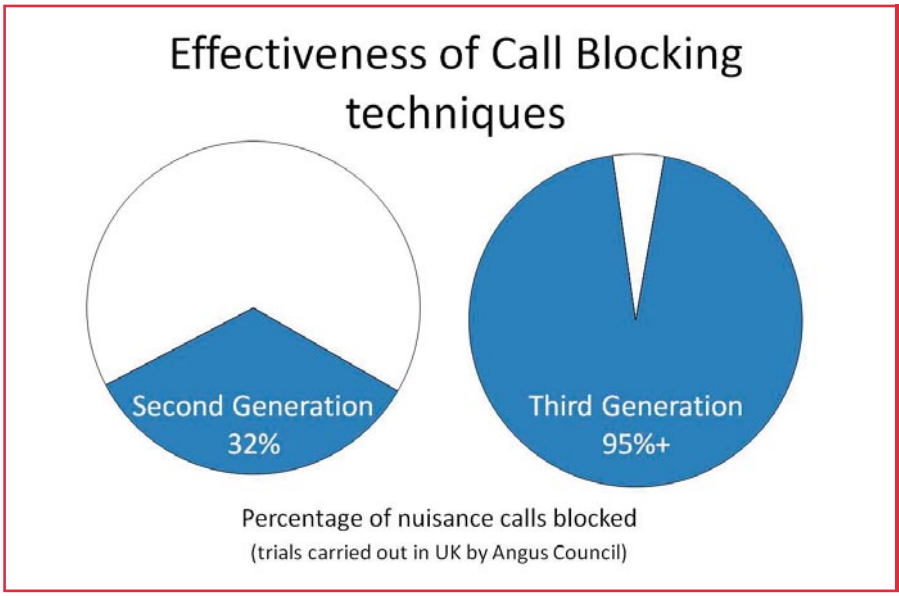
The First Generation of call management technology was the Caller-ID service – this was introduced around 1990 and allowed users to see who was calling before they picked up.

Second Generation call management technology is built upon the Caller-ID service, and allows users to unconditionally block calls from particular numbers, groups of numbers or classes of caller. This is the technology that is currently available in many DECT handsets. This technology has many limitations:-

- The first call from each nuisance caller still gets through – it is only subsequent calls from that caller that are blocked. There are literally thousands of Caller-IDs that you may want to block, and call centres often rotate the Caller-IDs they send, so next time they call you it may be from a different number.
- Many call centres withhold their number, or call from VoIP systems (so that their Caller-ID is unavailable). Second Generation systems allow you to block all callers who withhold their number, or all calls where the number is unavailable, but this means that you risk blocking some calls that you want to receive. In the UK hospitals, doctors, the police and social services all withhold their number.

Local authorities in the UK tested a Second Generation blocker and found that it blocked just 32% of nuisance calls.

Third Generation technology differs from Second Generation technology in that it focuses more on the people you do want to speak to rather than the people you don't want to speak to – their numbers are probably already in your phone's PhoneBook. Calls from these callers get straight through, calls from callers on your Block list are blocked with a message asking them not to call again, but what about calls from numbers, or calls that arrive without a number?




Third Generation systems intercept these calls, tell the caller that you don't accept telemarketing calls, and asks them to identify themselves by saying their name and pressing a button. Silent calls and recorded messages are blocked - they can't press a button – and the vast majority of telemarketers will hang up when they are intercepted (they have commission to earn and know that they're not going to make a sale to someone who is screening their calls). Legitimate callers who aren't yet on your Allow list can easily get through by saying their name - your phone rings, announces the caller and gives you the option of accepting the call, accepting the call and putting them on the Allow list, sending the caller to the answering machine, or blocking the caller (playing them the Block message and putting their number - if it is available - onto your block list).

The phone will start blocking unwanted calls immediately it is plugged in – it can be configured by the user, or they can just leave it to learn who you want to speak to as it is being used. This describes just the basic configuration – Third Generation devices allow users to set up a call handling strategy to meet their own particular needs.

In the UK there have been a number of independent trials of this technology and it has been shown to consistently block 95%+ of nuisance calls.

The first phone to incorporate Third Generation technology has been launched by BT in the UK – the BT8500. This uses trueCall's award winning call blocking technology and is proving a big hit with customers.

Nuisance call blocking technology can open up the DECT market – it can command a price premium, and it is a compelling reason for people to replace their existing phone. Many people buying BT's new BT8500 are replacing a BT6500 (BT's Second Generation call blocking phone) that they bought only 18 months earlier!

# Home monitoring with video over DECT

Millions of homes around the globe are already using DECT cordless phones, enjoying crystal clear sound and unrivalled home coverage. But DECT is not limited only to audio. Video over DECT is already here, offering better resolution and a higher frame rate at an affordable price.

**Video systems for home monitoring have been traditionally locked into the wired age. Requiring complicated wiring and special installation, they exceed performance needs and so are very costly. DECT systems that deliver video to home applications, such as surveillance and monitoring, bring home owners the benefits they have come to appreciate in DECT cordless phones.**

DSP Group, a pioneer in this area, provides solutions that build on the company's extensive experience and broad DECT product range.

The basic home video system may consist of one or more cameras and one or more display units – portable or stationary, battery-operated or mains-powered. With no wires attached between cameras and displays, all devices connect over wireless DECT.

In comparison to video delivered over Wi-Fi, DECT for video offers:

- A solution tailored for home monitoring
- A cost-effective platform that enables affordable products without over-specified performance-related costs
- Low current consumption that supports battery-operated cameras and displays with significantly increased standby time, thanks to Ultra Low Energy (ULE) technology
- A long range and dedicated frequency band that provides full home coverage with an interference-free operation
- Integrated antenna diversity mechanism stabilising video link in indoor, multi-path environment
- Built-in support for HD Voice
- Easy implementation of video link into home telephony systems, ideal for image viewing on any DECT handset at home for applications such as baby monitors, door bells and internal calls
- Simple transfer of camera image over IP to the cloud, PC or any cellular phone

DECT video setup can be either single- or dualpath, depending on the configuration:

- **Single Path** – This is usually from a battery-operated camera acting as a DECT portable part (PP) to the DECT fixed part (FP). Thiscan be a simple DECT base with a display or a DECT-enabled HGW or OTT device with IP access
- **Dual Path** – The DECT FP acts as a relay to display the image on a DECT PP, such as a portable display

A variety of applications may use these types of configurations. From door-bell camera, room and baby video monitors to external house surveillance systems. The DECT base (FP) in these systems support configuration such as:

- Surveillance dedicated base with portable or fixed display units (e.g. wall mounted display unit).
- Cordless phone base – where standard phone functionality is combined with video and monitoring and the handsets can act as portable displays
- DECT-enabled HGW – in this case, on top of the in-house link, an external communication link is possible via the IP connection.
  - This external link enables a variety of applications, including cloud-based services such as security, healthcare, and

*Figure 1: Single Video Path*

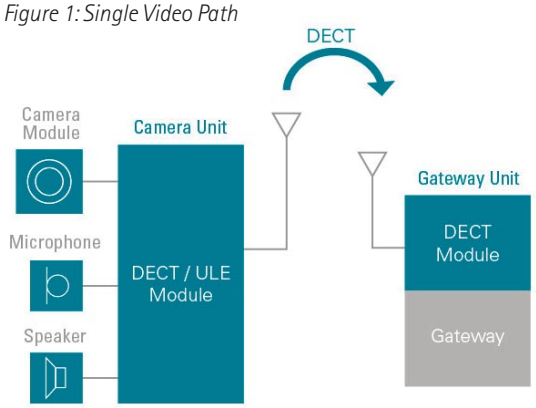
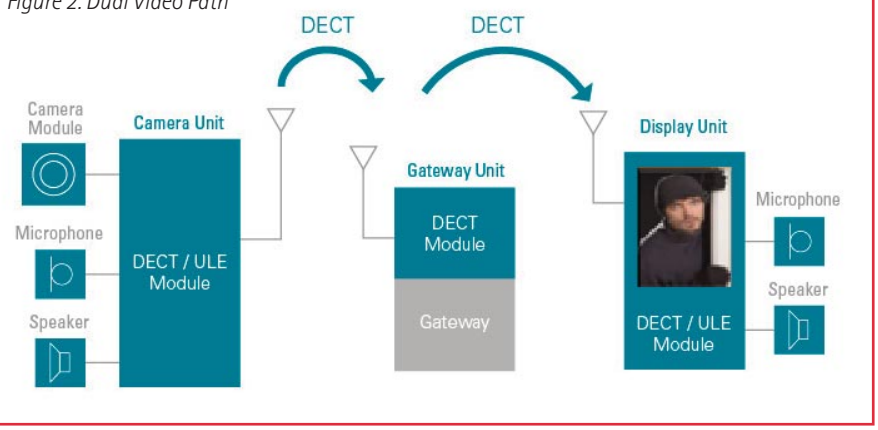



*Figure 2: Dual Video Path*



monitoring within the home, such as room or baby monitoring, house keepers, unattended children, security, and so on, all from a remote PC or mobile phone.

Some of these use cases are depicted below.

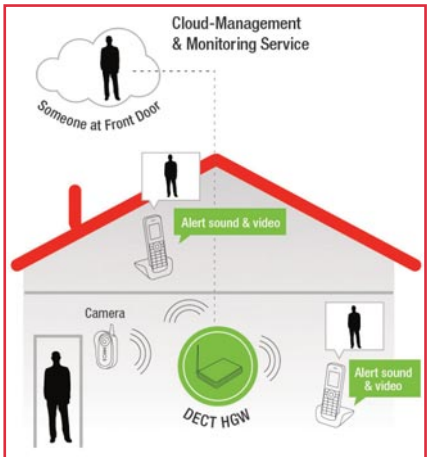



*Figure 3: Video DoorBell / External camera*

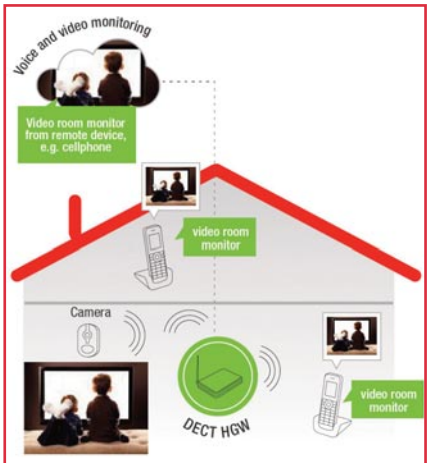



*Figure 4: Video Room /Baby monitor*

Until now, sufficient image quality and frame rates were stumbling blocks to the broad adoption of video over DECT. QVGA (320x240) resolution and higher frame rates are set to change this. QVGA resolution enables good image quality for display on a large screen (typically 3-4 inches), and its frame rates are sufficient for typical video needs in home applications.

The examples below compare QVGA resolution images (JPEG format) with lower resolution imaging. QVGA provides a level of image quality that enables detail capture in both static and live settings – precisely what the end user needs.

Recent advanced technologies developed by DSP Group enable video over DECT with QVGA and higher resolution with acceptable frame rates at an attractive cost.

| Coding Scheme | Image Size | Frame Rate | Mode |
|---|---|---|---|
| **Motion JPEG** | QVGA | 13FPS | Single path |
| **H264** | QVGA | 33FPS | Single path |
| **H264** | HVGA | 15FPS | Single path |
| **JPEG-Still** | VGA (and more) | | |
| **Motion JPEG** | QVGA | 6FPS | Dual path |
| **H264** | QVGA | 14FPS | Dual path |
| **H264** | HVGA | 7FPS | Dual path |

**Table 1: Video over DECT Rates (QVGA = 320x240, HVGA=480x320)**

*Table 1 below shows performance examples for both single and dual paths using different codecs and system configurations.*

## Chipsets and connectivity

With the demand for video monitoring at home becoming increasingly widespread as people take ownership of security and safety issues that directly affect their family, several companies are already working closely with DSP Group on the next generation of video over DECT systems. Well-known DECT ODM SGW (Shenzhen Guo Wei Electronics Co.) is among them.

"DSP Group's solution for video over DECT enables us to provide our customers in this market with better quality and higher performance products," says Malcolm Paton, Global Marketing Director of SGW. "We are confident that this solution will result in new video products that measure up to our customer expectations in three critical areas: quality, reliability and cost."

The portable DECT solution from DSP Group is based on the DHX chipset family. It is a highly integrated system on a chip (SoC) solution for ULE technology – the next generation of home automation and monitoring standards. The DHX family offers the advantages of superior range, video and audio support over DECT, long battery life, and DIY installation.

DSP Group is providing the DECT connectivity for the Home Gateway (HGW) with the advanced DCX81 DECT/CAT-iq SoC, or the complete Over-the-Top (OTT) IP terminal solution with the high-performance DVF99 SoC.

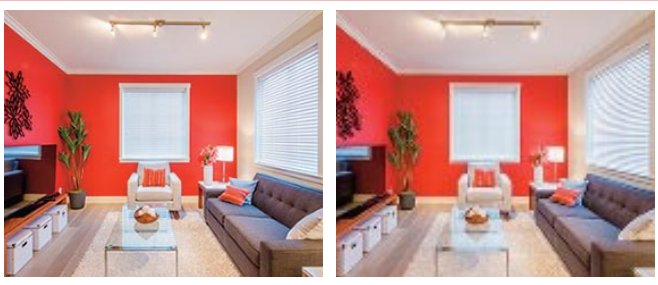


*Figure 6: QVGA Resolution (left) and QQVGA Resolution (right) Images*

## About DSP Group

DSP Group®, Inc. (NASDAQ:DSPG) is a leading global provider of wireless chipset solutions for converged communications. Delivering semiconductor system solutions with software and hardware reference designs, DSP Group enables OEMs/ODMs, consumer electronics (CE) manufacturers and service providers to cost-effectively develop new revenue-generating products with fast time to market.

At the forefront of semiconductor innovation and operational excellence for over two decades, DSP Group provides a broad portfolio of wireless chipsets integrating DECT/CAT-iq, ULE, Wi-Fi, PSTN, HDClear™, video and VoIP technologies. DSP Group enables converged voice, audio, video and data connectivity across diverse mobile, consumer and enterprise products – from mobile devices, connected multimedia screens, and home automation & security to cordless phones, VoIP systems, and home gateways.

Leveraging industry-leading experience and expertise, DSP Group partners with CE manufacturers and service providers to shape the future of converged communications at home, office and on the go.

For more information, visit www.dspg.com.

For more details, please contact;
DSP Group
Tali Chen
CVP, Corporate Development
Tali.chen@dspg.com

SGW
Malcolm Paton
Global Marketing Director of SGW
Malcolm.Paton@sgwglobal.com

# Operator News

## BT takes aim at nuisance callers

**As reported elsewhere in this issue, unwanted calls and automated recordings from PPI claim and sales companies are Britons' top annoyances, a new survey has found.**

Research from UK operator BT showed nuisance calls ranked above queue jumpers, noisy neighbours and rude commuters as the biggest bugbear, with the average person in the UK receiving six nuisance calls a week.

The poll of 2,000 people revealed 44% found the calls physically increase their stress levels, but some recipients have found a fun way to deal with them – 10% of Scots have admitted to playing a prank on cold callers, such as putting them on hold.

Those troubled by nuisance calls can now tackle the problem with the new DECT-based BT8500 Advanced Call Blocker. The phone is BT's most advanced call-blocking phone to date, stopping up to 100% of nuisance calls.

Its Call Guardian feature means the phone can intercept all calls from people not on the contact list. A virtual assistant asks unrecognised callers to announce their name prior to being connected, and users can then decide to accept or reject the call; if they reject it, that number is stored so it is blocked automatically if they call again.

It can also block withheld numbers and international numbers, which account for a significant proportion of nuisance calls. Users can also block callers by area code and mobile number.

TV presenter Janet Street-Porter, who is launching the phone, said: "The BT8500 Advanced Call Blocker is designed to stop these annoying and often intimidating nuisance calls once and for all. Your home is your sanctuary and the fact that these callers can invade your personal space is simply not on. Thankfully, they can now be blocked without even needing to speak to a cold caller, which is a huge step forward."

## US operator deploys HD Voice

**Cablevision appears to be the first large cable company to roll out an HD voice service to its home subscribers. Initially, it is doing this in New York and surrounding areas.**

Cablevision has blazed this trail previously, as it was also the first cable company to roll out HD voice to its business customers, as far back as five years ago. Our understanding is that other operators only started rolling out HD voice over the past two years, which means that Cablevision has something of a lead in providing HD voice services.

Subscribers using the service will be supplied with DECT CAT-iq 2.0 wireless phones. Cablevision, which markets its consumer services under the Optimum brand name, will apparently roll out its HD voice service on an area by area basis, and plans to have covered all of its customers within the next two months.

# The power to be...

**Dialog Semiconductor will probably be best known to the DECT community for its single-chip family comprising the industry's first fully integrated, monolithic DECT / DCT / CAT-iq / ULE processor ICs. These ICs combine baseband processing and radio functionality and provide a platform for creating a complete range of DECT / DECT6.0 / K-DECT and ISM band 2.4 GHz models.**

Dialog's single-chip solutions feature a 16-bit CompactRISC™ microcontroller for general processing including power management and non-real-time MMI functionality. In addition, a powerful Gen2DSP core processes the audio streams and delivers the superior voice quality of the CAT-iq standard. All of Dialog's single-chip DECT / CAT-iq solutions include support for hands-free speakers, LCD displays and LCD backlighting, allowing various products to be developed for different market segments using the same chip.

However, the reality is that Dialog Semiconductor provides a broad portfolio of semiconductor solutions, as we shall see.

## Mixed signal technologies for growth & volume markets

While DECT, CAT-iq and ULE remain at the core of Dialog's business, the company is, at heart, a fabless provider of mixed signal integrated circuits optimised for personal portable, low energy short-range wireless, LED solid state lighting and automotive applications.

In touch with today's gravitation towards mobile computing and communications devices, Dialog has developed leading power management intellectual property (IP) and focuses on power saving technologies. Dialog solutions power today's smartphones, tablets, ultrabooks and other portable devices, with business units responsible for Power Management, Ultra Low Power Audio, Short-range Wireless Technologies and Low Standby Current, High Efficiency AC/DC Power Conversion.

Alongside developing proprietary solutions that are optimised for specific markets, Dialog also works closely with industry bodies to define and implement new wireless standards and technologies. As a result, Dialog's solutions for real-time wireless voice and data applications ensure the earliest support for the improved and innovative features specified in these new releases.

One example of this would be Dialog's SmartPulse™ - wireless sensor network devices which use DECT ULE to provide interference-free connectivity for smart home appliances with ceiling-to-cellar reach and the option of voice control. SmartPulse is used by customers including Phillips, AVM, Panasonic, Everspring and Gigaset.

Another example of Dialog's innovative design process is SmartBond™, a Bluetooth® Smart System on Chip (SoC) that has been designed for the wearable computer, wireless keyboard and mouse, SmartTV remote control and proximity tag/indoor navigation markets. The SmartBond low power solution doubles battery life for Bluetooth Smart products, or alternatively enables fewer batteries to be used in contrast to existing SoC's on the market.

## Test and physical laboratories

While leveraging the outsourcing model to its fullest for volume manufacturing, Dialog still retains a prototype test facility, including physical analysis capabilities in-house. This facilitates fast ramping to volume manufacturing at the foundry and at packaging and test sub-contractors, achieving best in class industry yields and extremely high quality and reliable products.

Equally important, it allows Dialog to minimise the scope of tests required and the device test time, helping to reduce unit costs. Dialog Semiconductor maintains this test and physical laboratory at Kirchheim, near Stuttgart, Germany.

## The "go to" company for integrated power saving technologies

With approaching 30 years of experience, Dialog Semiconductor provides flexible and dynamic support, world-class innovation and the assurance of dealing with an established business partner.

Dialog continues to have smartphone and tablet design win success for power management and audio through engagements with the world's leading, trend-setting global consumer electronics brands. Dialog takes a "total system" approach to minimising energy usage with its highly integrated and configurable power and audio management circuits which enable portable devices to charge faster and support power-hungry multimedia applications and extend consumers' playtime between charging.

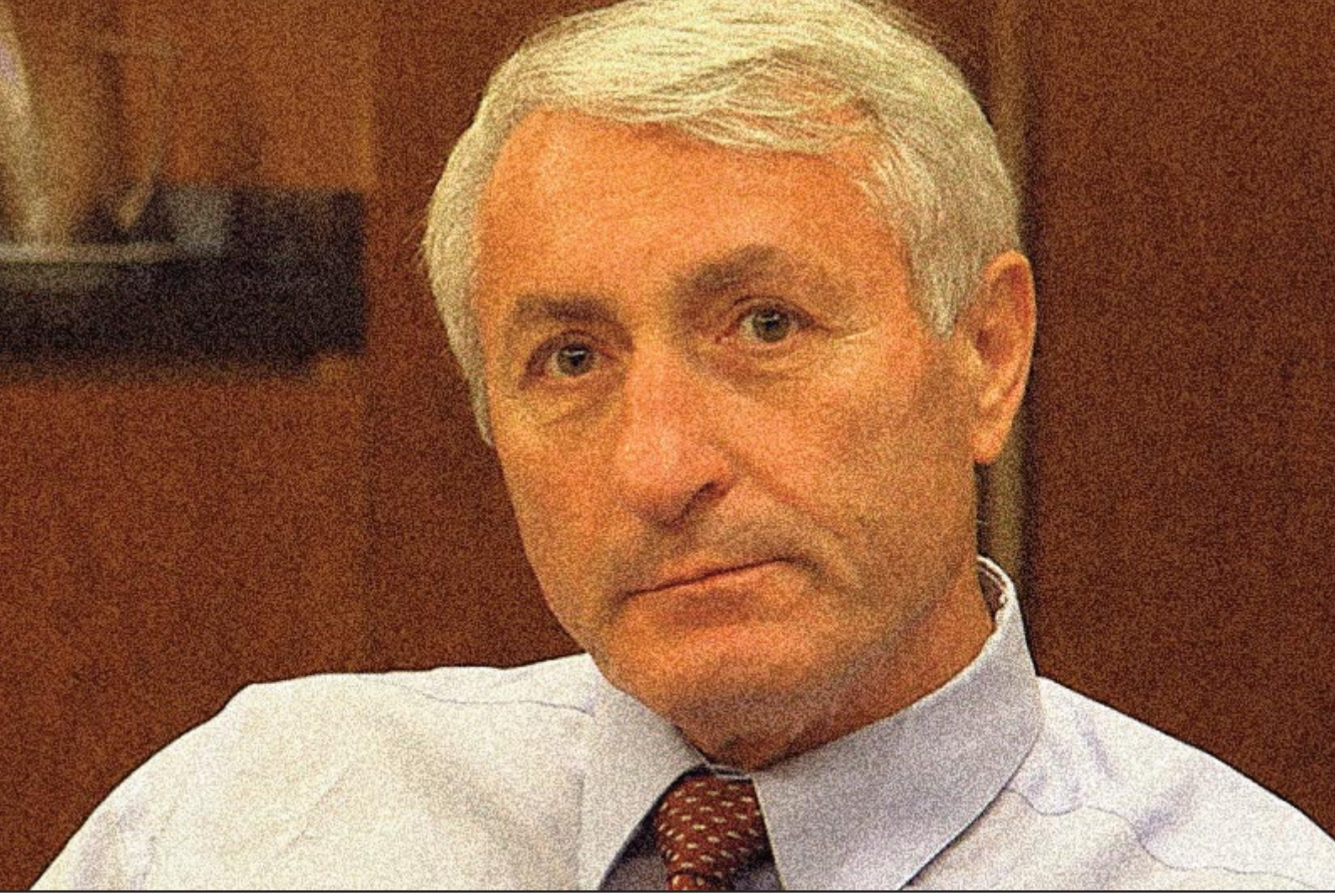
With R&D centres in ten countries, spanning the USA, Europe, APAC and Japan, there is little doubt that Dialog is ideally placed to service global, brand-name OEM clients. Currently the highest growth mixed signal semiconductor company, Dialog is geared to provide high-volume custom product and ASSP product capability, having developed a broad portfolio of ecosystem partnerships with the leading application processor vendors.

Through continued investment in R&D and strong relationships with its customers, processor and foundry partners, Dialog is on track to sustain its record of innovation, diversification and growth over the coming years.

www.dialog-semiconductor.com

INTERVIEW

# Manek Dubash talks to Avi Barel, Business Development Director of the ULE Alliance



**Q: WHAT IS THE CURRENT SITUATION OF THE ULE ALLIANCE FROM THE POINT OF VIEW OF TECHNOLOGY ADOPTION AND THE ALLIANCE'S ACTIVITIES AROUND THAT?**

We see an increasing number of new developments using ULE technology by members of the ULE Alliance and other companies. So it's good news for us.

We are stepping up our promotional activity to increase the awareness of ULE. For example, you will see plenty of activity at upcoming events such as Broadband World Forum in late October, European Utility Week at the start of November, as well as Connections Europe in late November and CES in January. We will also be participating in lots of events throughout 2015.

Another important initiative in our key aim of increasing the adoption of ULE technology worldwide is our decision to fund the development of ULE application layer protocol software. This development is now very near to completion. Once completed, we will offer our software as open source to the development community as a whole, not just to our members. We believe that this will help faster and broader adoption of ULE technology.

**Q: WHAT IS YOUR ROLE IN THE ALLIANCE AND WHAT WOULD YOU SEE AS YOU BEST SUCCESSES, YOUR CURRENT CHALLENGES – AND HOW DO YOUR PLAN TO ADDRESS THEM?**

As business development director, my role consists of several activities:

- Increasing awareness of ULE technology by promoting it worldwide via a range of instruments, including conferences, publications, events and face-to-face meetings.
- Establishing co-operation with other standards organisations, we already have

agreements with ETSI and HGI, others are in process.
- Adding more members - we've had great success in 2013 – the first year of the ULE Alliance, with a growth in membership to around 40. Currently we have over 50 members, and it's increasing steadily.

The ULE Alliance's mission is to create a framework that will enable alliance members to develop products faster, keeping development costs well under control. The certification programme is the key to make this happen, and the development of that programme was designated by the ULE Alliance board as the top priority activity for 2014. It allows members to test for interoperability and so obtain certification of compliance to the standard, and was created with some great contributions from our technical team and our partners.

And here's my challenge: to increase awareness of the Alliance, and of ULE and DECT technologies in general. The situation is that we have in our hands probably the best technology for the Internet of Things (IoT). It's best because of its unique characteristics – a dedicated radio band and a lack of interference with other radio technologies and ability to deliver voice and data simultaneously. All these result in longer range, the sophisticated, feature rich, yet simplest network architecture and lowest ownership cost of all similar technologies.

All this is a great starting point but it doesn't equate to automatic success – so my personal challenge is to make it a success. This means bringing more members into the alliance, creating more awareness and supporting internal projects.

## Q: SEPARATE FROM YOUR PERSONAL ROLE, WHAT DO YOU SEE AS THE BIGGEST CHALLENGES FACING THE ALLIANCE?

ULE is a late-comer so we need to close the gap of many years against existing technologies. Our biggest challenge is to get decision-makers, be it engineering, marketing or business management, to see what great benefits they can get from ULE. This means for example that we'll be attending more exhibitions, conferences and working with more publications to raise awareness.

The Alliance board of directors allocated significant funds to support stepping up promotion activities, which will become the main focus area for 2015. We partnered with Park's Associates and will be participating in events starting with Connections Europe and Connections CES, and more throughout 2015. ULE will be promoted in Park's Associates marketing material and this will help us reach out to development and decision-making communities. We are constantly seeking for speaking opportunities at conferences, where we can talk about what we are doing and the benefits of the technology. One issue is that, in Europe, most people know about DECT because it's a big standard and it is supported by ETSI. We are less well-known in the USA but we shall be getting more exposure.

## Q: WHAT ABOUT ULE VS MAINSTREAM DECT? ARE THE TWO TECHNOLOGIES DESTINED TO END UP IN COMPETITION?

In the long run, ULE will be bigger than DECT because the IoT will be huge. But we are not in competition – we complement each other. As an example, several operators have DECT-enabled gateways, ULE devices can be added to the home and still use the same gateway. No other technology can do this. This is one reason why we attract much attention from the operators and service providers. We are building our technology and market shoulder to shoulder with DECT, and from a technology point of view, a ULE device uses DECT. So there's no competition.

## Q: WHAT DO YOU SEE AS THE BEST USE CASES FOR ULE TECHNOLOGY THAT WILL HELP TO ENHANCE THE AWARENESS OF ULE IN FUTURE?

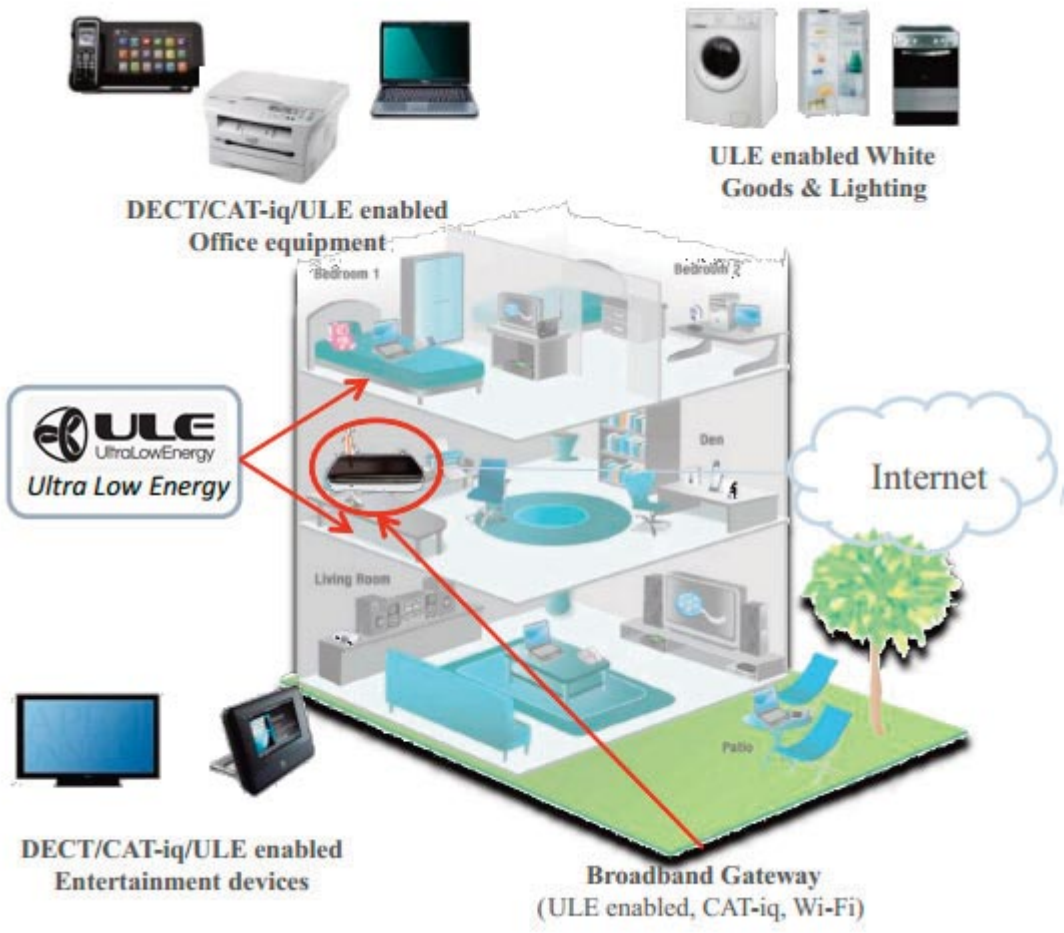
Like DECT, ULE is a universal technology. It can support voice and data, and is the best wireless technology for the IoT. The catch is that the potential is so broad that you can find yourself chasing after a multitude of opportunities. So we decided to focus on key applications including home automation, home security, climate control and healthcare.

And as far as awareness is concerned, any major product introduction in one of the focus areas will enhance the awareness of ULE. In 2015, we expect to see significant product deployments using ULE, mostly in the home automation area. Companies developing new products are in all the areas we have talked about.

## Q: WHAT'S YOUR KEY MESSAGE FOR DECT TODAY READERS?

ULE is here and it's growing, so we invite the DECT community to join hands with us because ULE is the future.

www.ulealliance.org



# DSP Group Introduces the Most Comprehensive IoT Solutions

## Market-Leading Chipsets for Nodes, Gateways and Over-the-Top (OTT) Boxes

DCX81 for Gateways and Concentrators

DVF99 for OTTs

DHX91 for ULE Nodes

- ✓ Enriching your home with voice, video, data and control
- ✓ End-to-end Ultra Low Energy (ULE) chipsets and firmware
- ✓ Development kits with easy-to-use graphical PC environment

Production-Ready Modules

**Come meet us and experience the industry's most innovative IoT solutions at BBWF 2014 and EUW 2014**

DSP GROUP®

For more information please visit www.dspg.com or contact info@dspg.com

# Home automation becomes a mass market

## Open standards such as ULE cater to the needs of consumers and smaller businesses

By Tilmann Braun

**Intelligent networks that connect and control buildings have been an important part of modern building management for quite some time. What is new is that such networks are all of a sudden becoming interesting for regular households and SMEs too. The reasons behind this surge are new standards which use existing infrastructures.**


Fitting homes and buildings with automation technology has so far been unprofitable for most consumers and small businesses. As a result, the target group used to be rather small. However, with the latest solutions, investments are more likely to pay off much faster as the solutions use existing


infrastructures and allow much more interoperability with other products.

The manufacturers of consumer electronics have led by example by allowing users to combine their new devices with products from other manufacturers to a single network. Instead of developing restricted solutions for the control of household appliances and HVAC, the smart home industry has now also turned to standards which are common when it comes to consumer electronics such as WLAN, DECT and powerline. Thanks to the open standards and the increased interoperability of the solutions, end users get access to new applications, features and scenarios - and the manufacturers' access to a new and much larger audience. "Through the unification of standards, combining machines and devices to intelligent networks is becoming increasingly interesting for regular households," said Eric Schneider of the M2M Alliance. "Until now, M2M was only exciting for the industry, but this is changing dramatically with the increasing interconnectivity of the entire house."

### Brand new but already in place in millions of homes and offices

Many sensors, switches and devices can already be integrated into the home network via Wi-Fi. Powerline technology allows higher bandwidths whilst DECT products with the new ULE (Ultra Low Energy) standard are significantly cheaper. In many cases, new hardware is not required to use the new standard as existing products can be upgraded to ULE via software updates. Just like DECT, the ULE standard allows encrypted transmissions and can be installed as quickly as a cordless phone.

Perhaps the biggest advantages of ULE over other wireless standards are its reliability and range, as well as the fact that interference with other radios can be ruled out. Unlike other wireless communication channels such as Bluetooth or Wi-Fi, ULE uses an exclusive and protected frequency band (1880-1900 MHz); this makes interference with devices like microwaves and garage door openers - which also use the 2.4 GHz range - impossible. Another important advantage of ULE is that it is cost-effective and that it helps to protect the environment: with ULE, the battery of a smoke detector merely uses a few microamperes - and therefore lasts for more than 10 years.

In 2013, the "ULE Alliance" was founded to serve the specific needs of the industry beyond the use of the regular DECT standard. ULE is of particular interest to manufacturers of air conditioning equipment, alarm systems, sensors, motion and fire detectors and automation technology.

"Consumers want devices which they can connect to a network, regardless of the manufacturer," said Jochen Killian of the ULE Alliance: "That's why manufacturers are looking for, and turning to, open standards and interfaces."

The costs for new systems vary - depending on the manufacturer, solution and demand. Among other companies, Gigaset, the market leader for cordless phones, and the FRITZ!Box manufacturer AVM offer products such as an intelligent socket which can be used to integrate household devices and appliances into the home network. "The demand is bigger than anticipated," commented Andreas Erhart, Country Manager for AVM in Austria. "Right now, the integration of the smart home into the world of home networking is still in its infancy, but it won't take long before consumers will demand and rely on such solutions like they already do when it comes to modern consumer electronics."

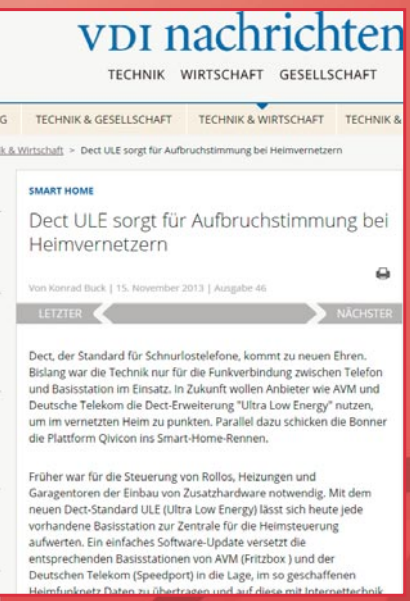
# ULE in the media



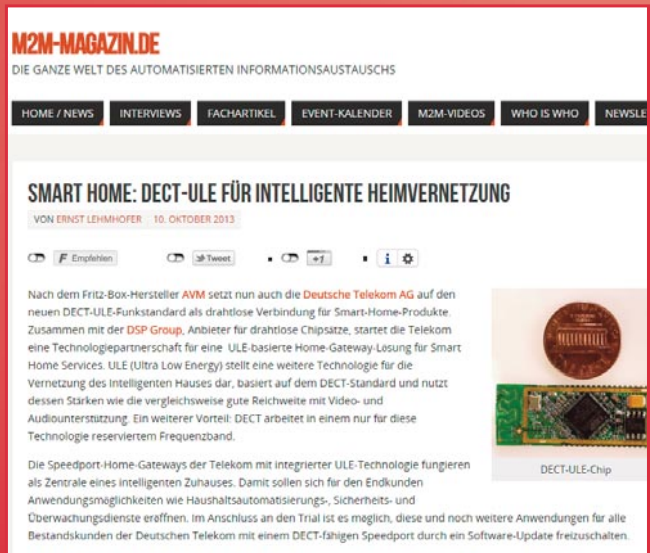












# ULE – the right connection for the Smart Home Gateway

by Wolfgang John,
Director Product Marketing for DECT at Lantiq.

**System providers face a challenge to deliver a smart home experience that operates simply enough to be a true benefit for consumers. Smart home networks will most likely combine many different devices and services, so the in-home link technology must be easy-to-integrate into low-cost devices, reliable, and battery-friendly. This network also requires an internet connection to be accessible both to cloud-delivered services and to consumers when they are not home.**

Fortunately, the technology to fulfil each of these requirements is in place today. Smart devices within the home – including security, automation, and energy services – can be linked using stable, reliable and low power ULE technology. Broadband data and telecoms gateways offer the computing horsepower and flexibility to manage heterogeneous smart home networks, supporting connectivity between networks of smart devices and to the broadband access network.

While current generation in-home data networks are designed to link computing, communications and entertainment devices, a smart home will link safety, comfort and convenience devices to provide new capabilities for consumer control and vendor services, including:

- Security: motion sensors, window/door contact sensors, glass break sensor, smoke/heat sensor, etc.
- Climate control: temperature and humidity sensor, heating/air conditioner control, shed control, etc.
- Convenience; appliances/white goods, lighting system control, smart electrical outlets, door bell, etc.

A central control application is needed to check the status of these devices and trigger actions. The consumer also will want to monitor and control smart home devices while away, and allow cloud services to have permission-based access to the network. This means that the in-home network needs a connection to the Internet. While you could link an independent base station or control panel unit to the existing residential gateway, why not simply integrate control services into the in-place hardware and make the broadband gateway the central hub of the automated home?

Broadband Communications chipset supplier Lantiq has built this capability into its CPE devices with integration of the newest ULE Alliance Device Protocols and best in class DECT solutions. The gateway connection to the Internet may use any of several technologies; this link is essentially transparent to the in-home smart network. In the home, high bandwidth links to entertainment and computing resources (TV, audio, computers and tablets, printers) are handled by Ethernet and/or Wi-Fi. What's needed is a link technology to connect the new generation of intelligent smart home devices. As many of these devices will be battery-powered, this link must be wireless.

Wi-Fi and Bluetooth face limits in terms of either power requirements or range/coverage. ULE, however, is ideally suited for this type of application. The core technology is proven in use for 20+ years, and many residential gateways already have an integrated DECT base station. ULE uses the same physical layer, and runs a new set of protocols optimized for smart device networks. A software upgrade will enable ULE functionality in many existing gateways, and the industry ecosystem exists to support high-volume production of link chips to add network connectivity to smart home devices.

To firmly establish ULE as a core technology for smart home connectivity, Lantiq and the ULE Alliance are moving interoperability forward by defining the required protocols, as well as designating test and certification bodies. This provides vendors with a path to obtaining a ULE certification logo that will allow end customers to confidently buy smart home devices. This will be in place by year end 2014, bringing the industry a powerful new technology solution to build the Internet of Things.

## About Lantiq

Lantiq, a leading supplier of broadband access and home networking technologies, offers a broad and innovative semiconductor product portfolio for next-generation networks and the digital Home.

More Information about Lantiq is available on our Website or via Twitter @Lantiq, LinkedIn and YouTube.

# Wireless audio over DECT: in perfect sync

Whether you're listening to your favorite music as you move around the house or enjoying a film in perfect surround sound, wireless audio provides more freedom and enjoyment without the clutter and hassle of cables.

**But redistributing high-quality audio around the home without annoying delays or interruptions is a challenge that requires the right technology choices. A proof-of-concept project by Dialog, Inteno and Audio Pro shows how DECT enables high-quality audio via a standard IAD, allowing gateway makers and telecoms companies to offer a whole new range of services.**

DECT is a mature and proven wireless connectivity technology. It made its name in cordless telephony, where it is the de facto global standard with an installed base of more than half a billion products. In recent years – particularly since the emergence of the ULE variant – DECT's unique mix of characteristics has seen DECT used in a wider range of applications such as home automation and security.

## Hitting the right notes

Meanwhile, the growth in popularity of online music services like Spotify and internet radio is driving interest in wireless audio systems. People love having a vast music catalog at their fingertips, but they don't want to be tied to their computer or the small speakers of their phones to listen to it. Wireless audio makes that possible but to be successful, systems need to deliver crystal-clear sound easily in a variety of set ups. That in turn requires a wireless technology that can deliver reliable, high-bandwidth transmission with sufficient range.

There are, of course, a number of possible wireless technologies. But DECT offers the best fit for wireless audio applications. For example, with a link budget of up to 120 dB and typical indoor range of around 100 meters, DECT easily covers the whole house and garden without resorting to complex "mesh topologies" or restricting the base station position.


Unlike Wi-Fi and Bluetooth, DECT operates in a technology-exclusive frequency band rather than the already congested 2.4 GHz band. This guarantees no interference from other nearby wireless applications, so no annoying loss of signal. What's more, the band is royalty free, helping reduce costs.

DECT also natively supports multi-room set-ups that let different users listen to different audio streams simultaneously from the same base station. Its combination of medium access techniques divide the available spectrum into a number of separate physical channels, while Dynamic Channel Allocation ensures each transmission uses the least busy channel. What's more, DECT's bi-directional data channels allow users to pick tracks and control the sound remotely.

## Always in time

A key challenge for multi-speaker wireless audio set-ups is ensuring the signals to each speaker remain synchronized. This is particularly difficult for packet-based technologies such as Wi-Fi and Bluetooth, which is why many Bluetooth speaker systems include both speakers in one unit.

By contrast, as a time-domain technology, DECT offers built-in synchronization between left and right speakers to within 1 µs. Hence it is possible to create true stereo systems with separate speakers that can be placed anywhere the user likes for maximum convenience and listening enjoyment.

Thanks to its configurable, fixed low latency (10 ms maximum protocol air latency), DECT also supports real-time applications such as audio synced to video. Together, these features allow users to easily add wireless speakers to their (wired) home theater systems to create a full – and fully synchronized – surround sound system whenever they want it.

## The demo

To fully explore the benefits DECT brings to wireless audio, IC manufacturer Dialog teamed up with Inteno, a gateway manufacturer known for its iopsys open software

platform. The two companies created a proof-of-concept demonstrator that integrates DECT wireless audio into an existing Inteno gateway using a Dialog wireless audio module based on its SmartBeat SC14492 IC.

"Integrating the DECT wireless audio functionality was a relatively easy task," explains Conny Franzén, CEO of Inteno. "We see DECT wireless audio as yet another differentiator proof of the flexibility of our iopsys software platform. This attractive functionality allows our customers to offer new services and create new revenue streams."

To complete the demo, Dialog and Inteno worked with speaker manufacturer Audio Pro. Using the SmartBeat SC14492 IC, the Audio Pro ADDON T12 Bluetooth speaker was modified to accept DECT signals, by a simple modification to the I2S interface. In tests using an IC evaluation board, Audio Pro achieved line-of-sight transmission ranges up to 550 meters.

Inteno also extended its FileMe file sharing application with Digital Living Network Alliance (DLNA) control point capabilities. This allows the FileMe applications for Android and iOS to detect and stream audio to any media renderer in the home. Using the DLNA technology and the DECT-enabled Inteno gateway, any control point can play any available local or remote audio file through the selected DECT speakers.

"DECT-based wireless audio is very interesting for speaker companies like ours," says Tobias Hansson, R&D Manager from Audio Pro. "It would allow us to expand our portfolio with a new generation of fully synchronized stereo systems, giving consumers the convenience of wireless audio throughout the home with excellent sound quality and no interruptions.

## Perfect pitch

A key factor in the success of any wireless audio system is the sound quality it delivers. For the best sound, the wireless technology must be matched to an audio codec that complements its capabilities. The Dialog-Inteno-Audio Pro demonstrator uses the Opus Custom codec implemented in the software running on the SC14492 (and all Dialog SmartBeat ICs).

Opus Custom is the ideal codec for DECT. It is a multi-bitrate codec that supports the full audio bandwidth (≥ 20 kHz stereo). Like DECT, Opus offers a configurable, fixed low latency, eliminating the need for additional buffering. And its excellent sound quality has been demonstrated in numerous independent tests including listening tests by Google and Nokia.

Opus also brings benefits for commercialization. For example, it is open source so base station and speaker manufacturers don't have to pay royalties – helping keep system costs down.

## A chart topper

The Dialog-Inteno-Audio Pro demonstrator is the first proof-of-concept for DECT wireless audio in broadband IADs and gateways. It is further evidence of the flexibility and growing applicability of this familiar wireless technology.

"The success of the proof-of-concept demonstrator shows just how well-suited DECT is for high-quality wireless audio streaming," says Adrie van Meijeren, Business Development Manager at Dialog Semiconductor. "The optimized combination of DECT and the Opus Custom codec makes it possible to create wireless audio systems with unprecedented sound quality, range and user friendliness at an affordable price."

# Clarity in Abstraction:

## Why a universal approach is crucial to ring in the era of the smart home.

By Duncan Bees, CTO, HGI

**After 20 years of promises, truly smart homes with convenient automation services are almost ready to achieve mass-market acceptance. The work is not over, however, and a focus on interoperable standards is now essential in order to fully achieve this vision.**

### The not-so-intelligent Smart Home

The notion of home automation services is not new. As early as the 1980s, consumers have used a range of home automation devices and related services to control their environment at home, with lighting control, smart thermostats, home security, automated sprinkler systems and smoke or fire alarms as key examples.

Home automation systems for these devices include visualisation at a centralised location of the home's status; centralised controls so that users may switch devices on/off; automated scheduling to eliminate manual operation; and remote monitoring and control. While these gained some usage, drawbacks remained, such as the need for special wiring or cabling, resulting in high costs and inconvenience. Furthermore, visualisation of status was usually based on purpose-built hardware, available only from the original manufacturer, and proprietary configuration methods had to be learnt for almost every system.

So consumers faced difficulties in configuring services and users needed to re-learn the proprietary systems whenever they visited a friend's home or moved to a new system. Even a task as seemingly simple as programming the start time for an electrical baseboard heater could be aggravating due to primitive user interface controls.

### The Smart-ER Home

Today's smart home systems aim to change this by providing the most commonly required home automation services, together with home health care, assisted living for the aged/disadvantaged, home energy management and other services. All of this should be handled within a flexible and up-to-date user experience that unifies the various component services (from various manufacturers) into a common look and feel.

Customers who order high speed Internet from a broadband service provider, for example, would have a broadband home gateway installed to facilitate access. Later, if a customer decided to add a home security service or home energy management system, all they would need to do is visit the provider's web portal, select a service provider and place an order for a self-installation kit. Once installed, the new service would operate wirelessly together with the existing Home Gateway and the status could be accessed and controlled via the provider's portal or through a smartphone app.

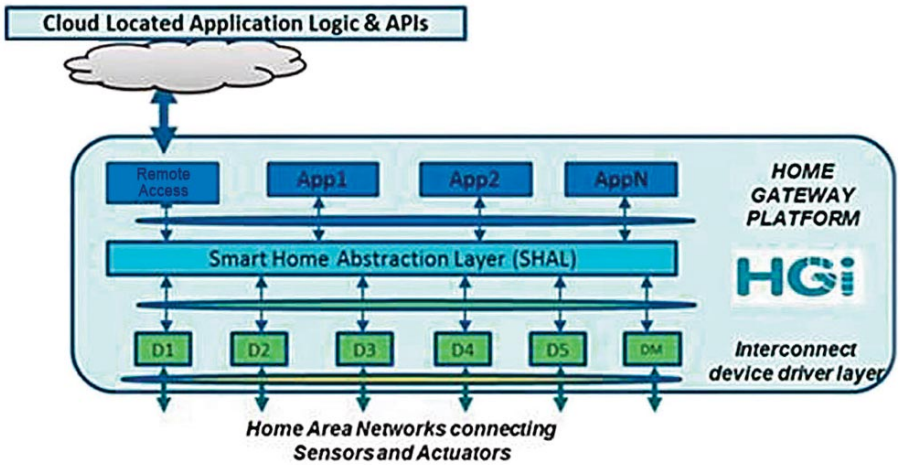
The issue is: how to move the smart home from the 1980s to 2014?

### Achieving the Vision

Broadband service providers aiming to be more than bit pipes are taking steps to integrate home automation services into the consumer's daily mix of information services. To ensure these home automation systems do not aggravate users as did their 1980s counterparts, HGI's Smart Home Task Force is setting the requirements for the smart home platform and developing testing approaches that will enable vendors to bring smart home products to market quickly.

HGI's work on defining the Smart Home Abstraction Layer (SHAL), with industry consensus, is crucial to achieve scalable interoperability with diverse local home network systems. The SHAL aims to isolate the applications, both in the cloud and those available in the Home Network, from the complexity of different local network protocols and device drivers, enabling all smart devices to communicate with each other, regardless of manufacturer.

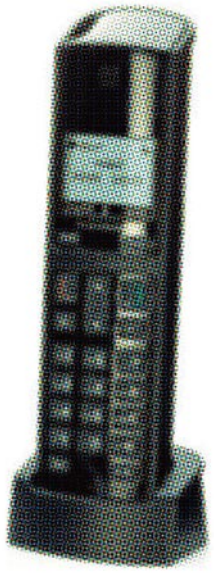
By determining the core requirements at an industry level, HGI helps to create a robust smart home ecosystem that can flourish to the benefit of many. Specifically, the SHAL will ensure that devices utilising many different standardised forms of wireless communication in the home area network can be interpreted in a standardised way in order to enable their use in applications such as eHealth, security and other smart home functions. This makes the integration of products into a common smart home ecosystem easier for gateway, software, and device vendors as well as service providers. With SHAL, the smart home of the future will be brought into the present.



DECT FORUM

# DECT Today

## The Success Story Continues



Click here

Click here

DECT Today provides commercial and promotional opportunities in the DECT, CAT-iq and ULE sectors.

Contact: Roland Schmidt
Email: secretariat@dect.org
Telephone: +49 89 5166 2456

**www.dect.org**