

SUBJECT DECT: From 3G to 5G

DATE 17.09.2018: PT1 Meeting Dublin

Daniel Hartnett: DECT Forum Business Development

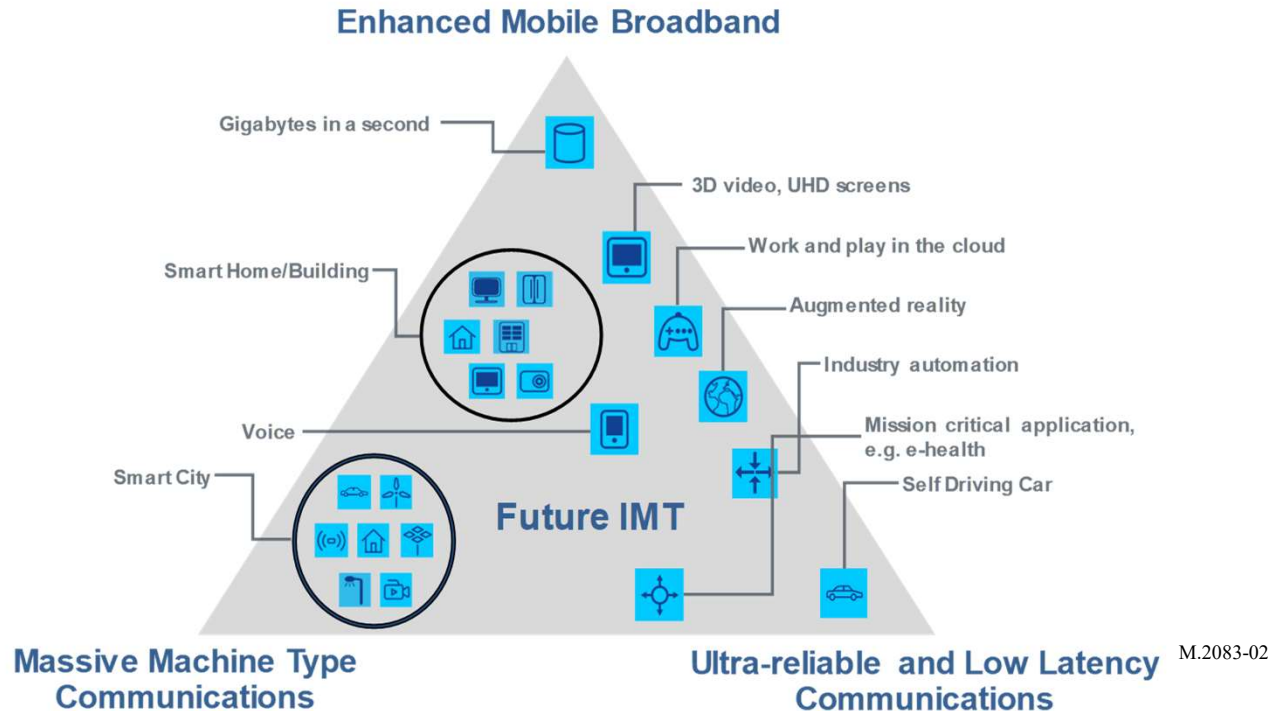
Agenda

- 5G Vision
- Background: Why DECT-5G(open,engage, evolve)
- Evolution 3G to 5G
- Why DECT-5G makes sense
- ITU calendar
- Milestones: (RIT, SRIT), Interworking
- Proponent technology:
 - URLLC, MMTc
 - Applications /Verticals
 - Reasons/requirements (WP)
 - USPs
- openD
- Summary:

The 5G vision

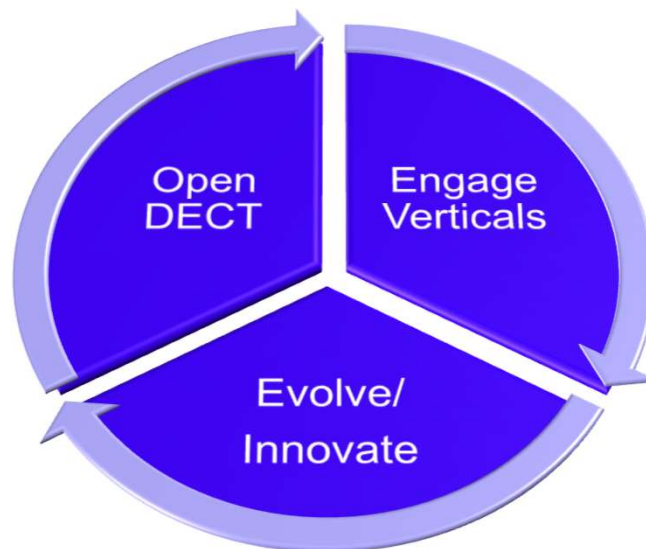


5G usage scenarios from the ITU-R IMT-2020 Vision Recommendation



- 5G scope requires diverse solutions to diverse requirements
- ITU-R technologies should be complementary for a successful rollout
- 5G business case has to add up
- DECT-5G Focus: Voice, Smart Home, URLLC, mMTC

DECT: Open, Engage, Evolve



To move from 3G to 5G

- Open DECT (openD)
- Engage industry verticals (Industry, Healthcare...)
- Evolve and Innovate the technology (DECT-5G*)

*DECT-5G: DECT Forum name for DECT & ULE in the 5G mobile standard



Current Status: DECT Industry Evolution

DECT : Cordless Voice



CAT-iq: Integration IP



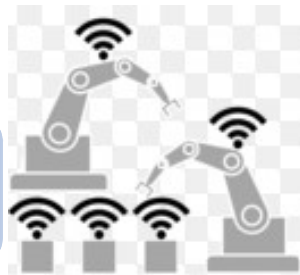
DECT:Security Certification



ULE: Smart, Battery powered, connectionless



DECT Evolution: URLLC



DECT-5G



From 3G... to 5G

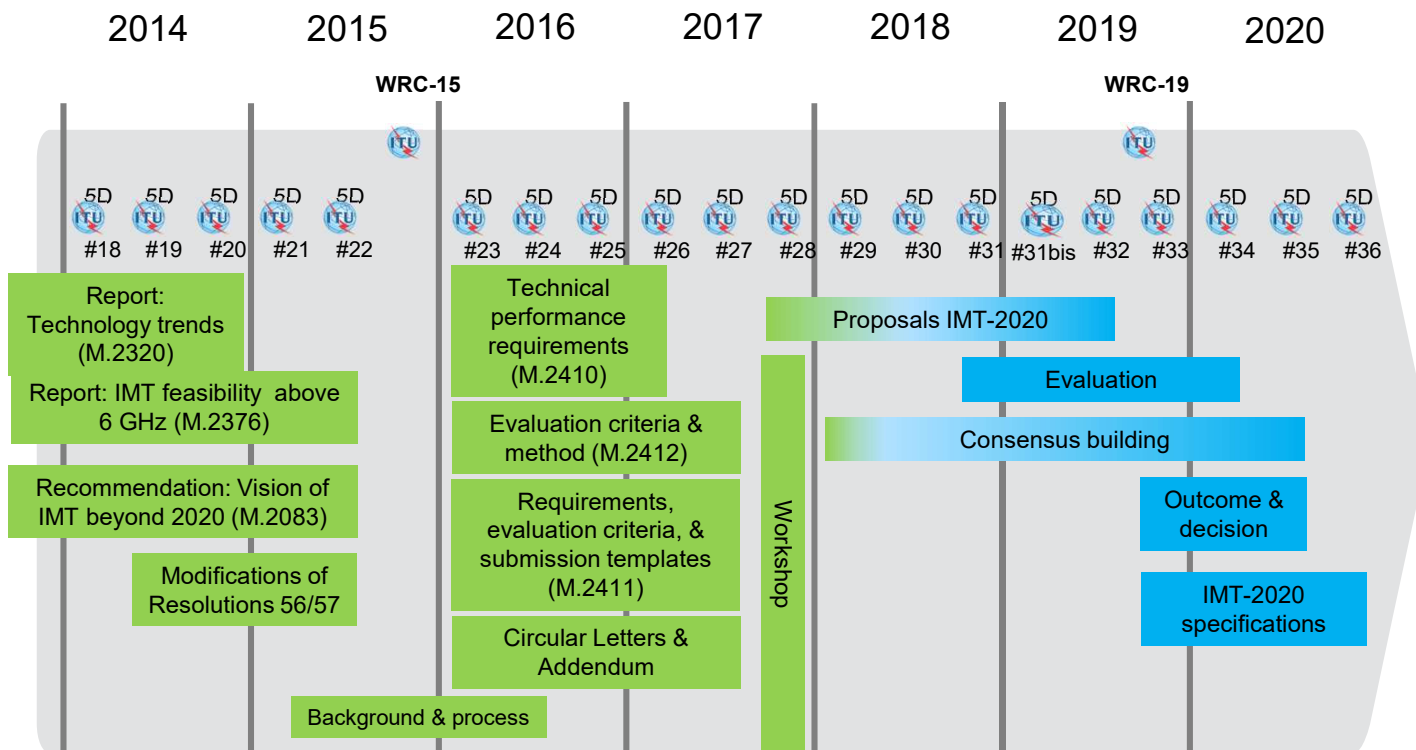


DECT-5G makes sense

- IMT-2020 Proponent technology (RIT)
- Perfect complement to 3GPP mobile, for sustainable 5G deployment
- Seamless interface to 3GPP with interworking layer (proposal for integration of IMT family of standards)
- Proposal to form an SRIT with 3GPP by TC DECT members
- Economically sustainable 5G using existing infrastructure
- Eco-System of Manufacturers, Chip Makers, Operators and users
- ETSI Standard with > 25 companies driving
- Global representation
- Open source development platform (openD)

WP 5D timeline for IMT-2020

Detailed specifications for the terrestrial radio interfaces





DECT-5G Milestones

October 2017: Presentation to ITU-R of DECT-5G as a proponent RIT

June 2018: Presentation to ITU-R of DECT-5G system overview (RIT)

August 2018: Presentation of Liaison statement: TC DECT to 3GPP

September 2018: DECT-5G White Paper published

October 2018 ITU-R 5D#31:

- Submission of DECT-5G update including simulation results

October 2018 : Start of evaluation process

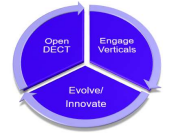
2018 onwards: Consensus building:

- Members, Standards bodies(ETSI, ITU-R)
- Regulators: CEPT countries
- European Commission
- Trade organisations
- Government Ministries

July 2019: Deadline for submission Proponent technologies at ITU-R

Oct 2019: Outcome/Decision

Evolve and Innovate : DECT-5G White Paper



- DECT Forum's 5G White Paper: The Industry narrative
 - A vision for products and services from 2020 onwards, positioning DECT in new markets
 - The technical requirements of members applications to create the contours of DECT-2020
 - Building a 5G technology for real world applications
 - The White paper is our reference point to excite and engage new vertical industries, trade organizations, government bodies, members and potential members
 - Drill down to each of the key vertical industries addressable by DECT 5G





DECT-5G : IMT-2020 Proponent

- DECT-5G (DECT-2020) is an official IMT-2020 proponent technology
- DECT-5G Focus:
 - Voice, Smart Home, URLLC, mMTC
- Vertical Markets:
 - Smart Home, Industrial, Healthcare, PMSE, Audio
- Horizontal Markets:
 - Voice, Low power
- Typical requirements:
 - Low latency (1ms)
 - Reliability 1-10⁶
 - Superior Range
 - Low Power- battery life >5 years
 - Security (AES, 128 Bit encryption, Authentication)
 - Leverage existing infrastructure
 - Backward compatibility

Vertical: Industrie 4.0



Mobile Robotics



Factory Automation



Localization



Control



Logistics

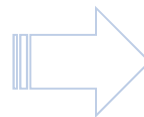
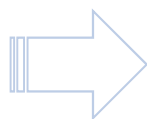
Industry 4.0 Goal:

- Increase the flexibility, versatility, productivity and resource efficiency

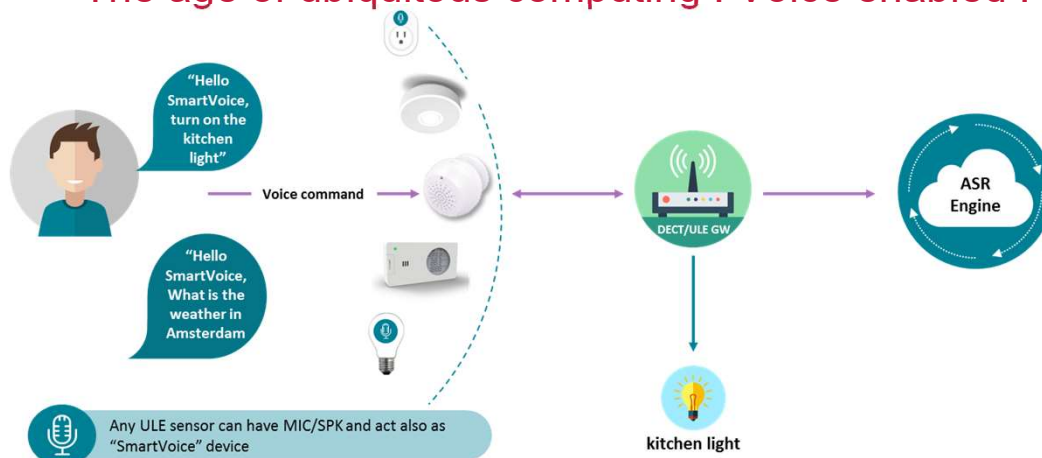
Requirements

- Industrial grade wireless:
 - Latency (1 ms),
 - Reliability 1-10⁶ , dependency
 - Support QOS
 - Seamless mobility
 - Security: confidentiality, authenticity, data integrity
- Exclusive access to spectrum,
 - Remove concerns about licensing, security, cost, liability
 - Global spectrum availability
- Cost:
 - IPR, Silicon, System, Infrastructure and licensing
- Making DECT a very compelling choice

Target Verticals: Voice activated



The age of ubiquitous computing : Voice enabled !



- ✓ Embed voice in any IoT device /sensor
- ✓ DECT&ULE provide HD Voice for ASR engines at low power for always on mode
- ✓ DECT-5G: AI on the edge of the network in the GW and in the sensors/devices to improve Load Balance, Latency, QoS, Security and Interference



Simply Secure Connectivity

DECT&ULE: The Voice of IoT

Vertical: Voice

- Adresses many different vertical markets
 - Smart Home
 - Building Automation
 - Healthcare
 - Audio
 - Security
 - Industrial
- Possible use case:
 - Battery powered Voice activated sensors that double up as telephones, speakers, intercom, broadcast
- Requirements:
 - link reliability,
 - long range
 - audio quality on battery operated devices.
 - quality of service
 - Bit rate
 - Numbers of channels (number of portable parts)
 - Full band quality 20-20000Hz (multi-room, Multi speaker)

Introducing openD

openD: The developer community helping to define DECT-5G

- ✓ openD is an API to unlock the uniqueness of DECT and ULE
- ✓ Puts the tools in place for wider adoption in other key industry verticals
- ✓ Unique combination of Voice (activation), Sensor, low power/latency
- ✓ Easy, Clever, Versatile, Secure, Reliable and interference free
- ✓ Walks the Walk: Ref Designs to prove concept:

Mission Critical Devices



Voice Activated Alarm



Automation





openD developer community



openD unified API 1.0.0-alpha.6

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openD unified API

Introduction

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Further Information

License

► Framework architecture

► Protocol

► Audio

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Introduction

Abstract

This project is the open source openD framework. The purpose of this project is to provide a framework which defines a **unified API** for DECT and Ultra Low Energy (ULE) DECT fixed and portable part devices designed to support various hardware platforms. The idea of the openD framework is to make the DECT and ULE technology available to enable a fast and easy development of DECT and ULE devices. The framework provides sample codes, tutorials and documentation.

This documentation contains the definition and specification of the openD API. It also contains a description of the overall architecture of the framework and a definition of the protocol which is used to control especially the fixed part over UDP. Please refer to:

- [Framework architecture](#)
- [Protocol](#)
- [Audio](#)

GitHub

The source code is available on GitHub:

[OpenD on GitHub](#)

For more information please also visit the wiki pages on GitHub:

- [Build system](#)
- [Code examples](#)

OpenD Community

The openD community is the place where you can find all information around DECT ULE and the openD framework. It is the place where developers come together to discuss DECT ULE and openD related topics and to exchange will also find much more:

- [News and events about openD and DECT ULE](#)
- [General information regarding the openD project](#)
- [Information about manufacturers and supported hardware](#)
- [Forums](#)

openD openly communicates every step of the development!

Get on board

<https://github.com/opens-connect/opens>



Summary

IMT-2020

- 5G will change today's mobile landscape
- IMT technologies will interoperate to provide a seamless 5G experience
- IMT and IEEE technologies should complement each other to deliver on 5G promise
- 5G success relies on creating sustainable business models to accurately engage new verticals

DECT-5G

- DECT-5G is a proponent IMT-2020 technology complementing other technologies
- DECT-5G will offer industries with special requirements a real 5G experience
- We look forward to the support of regulators, trade associations, ministries and standards bodies to make DECT-5G a success

Thank you for your time