Overview of the WALTER test beds. The services WALTER offers

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1.Introduction

2.WALTER Test Categories

3.Testing Capabilities

4.Conclusions



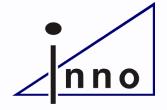
WALTER (Wireless Alliances for Testing Experiment and Research) is :

Specifying, testing and improving **interoperability** of broadband radio devices and for that will

Develop a pan-European broadband test bed, covering the needs, for research, industry and regulators



 WALTER gets together partners from different locations and activity areas:



(Coordinator, Germany)



and Security of the Citizen

(Test Lab, Italy)



(SDO, France)





(Technical Direction, UK)



(Test Lab, Spain)

(Test Lab, China)



(Industry, Israel)



(Industry, UK)

Testing solutions for broadband radio devices





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WALTER addresses:

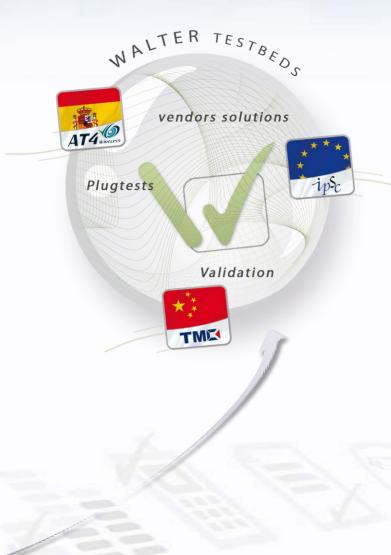
- Short term needs of industry and regulators
- Long term needs of research communities

TEST SPECIFICATIONS

Calibrations and measurement uncertainties

Interoperability

Testbeds architecture





1.Introduction

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Test Categories

The WALTER test beds cover 8 test categories:

- Regulatory (REG)
- Conformance (CON)
- Interoperability (IOP)
- Radiated Performance Tests (RPT)
- ✓ Over The Air (OTA)
- Coexistence (COE)
- Performance (PER)
- Plugfests (PGF)

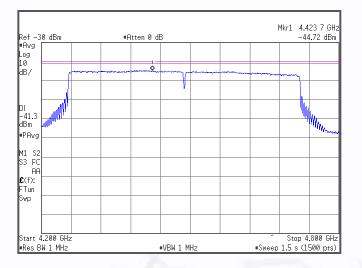
Test Categories - REC

The **REG** category deals with requirements such as (*focus on EN 302 065*):

- Spectrum and Power Characteristics
- Radiated Emissions
- Detect and Avoid
- ✓ Time-related Parameters
- ✓ etc...

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Testing solutions for broadband radio devices

Test Categories - CON

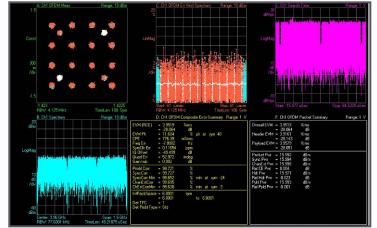
The **CON** category deals with requirements coming mainly from WiMedia Test Specs (*protocol testing*):

✓ PHY

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✓ MAC

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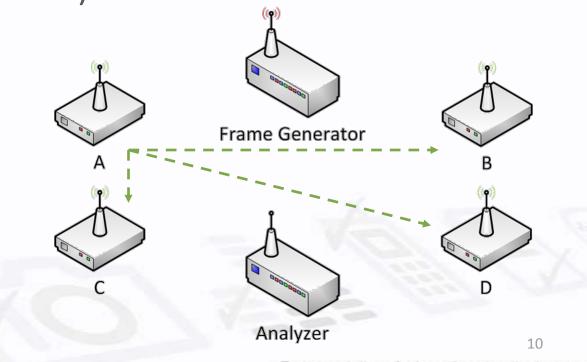




Test Categories - IOP

The **IOP** category is intended to check the multi-vendor interoperability at different layers:

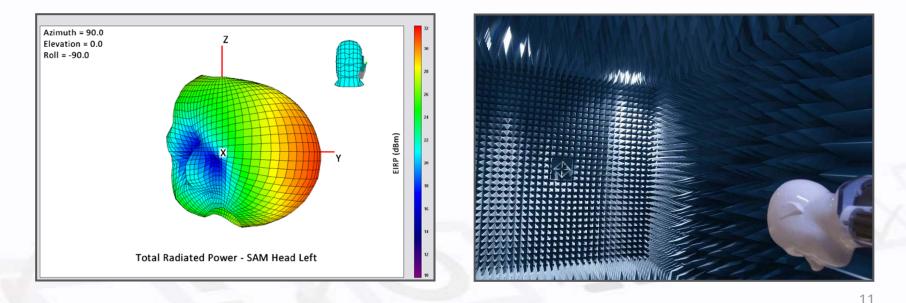
- ✓ MAC (WALTER IOP)
- ✓ IP (Ping, data transfer...)
- ✓ Upper layers...



Test Categories - RPT

The **RPT** category deals with the radiated performance of the device:

- ✓ TX (TRP measurements)
- RX (TIS and desense measurements)



Test Categories - OTA

The **OTA** category deals with:

✓ Software Defined Radio (SDR): controlling the device over the air

- Transmit Power Control (TPC)
- Dynamic Channel Selection
- Data Rate Adaptation...

 Environmental Field Tests (EFT): Real environments outside an anechoic chamber

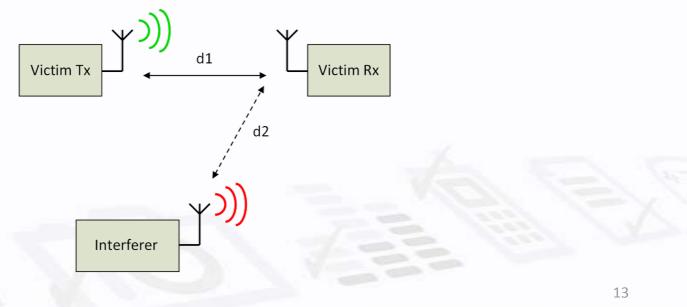
LOS/NLOS performance tests

Test Categories - COE

The **COE** category is intended to check whether two wireless technologies can coexist simultaneously:

Among different technologies (e.g. WiMAX-UWB)

✓ Within the same technology (e.g. UWB)

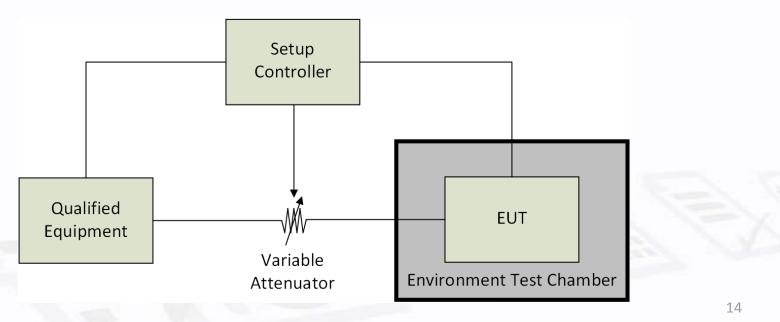


Velter Test Categories - PER

The **PER** category checks whether the DUT fulfils commercial assurances quoted by the manufacturer

Sensitivity - Temperature

✓ Output Power - Temperature



Test Categories - PCF

The **PGF** category refers to those testing activities performed at Plugfest events

✓ Test plans developed according to participants needs

Oriented to prove multi-vendor interoperability





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Testing solutions for broadband radio devices

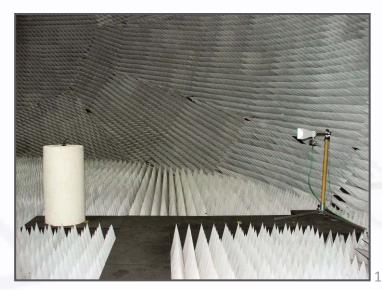
Testing Capabilities - REC

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The WALTER test beds offer the following **REG** services:

Standard	Covered	Limitations
EN 302 065 v1.2.1		EIRP below 2.7 GHz and above 10.6 GHz
EIN 502 005 VI.2.1	•	DAA test methods to be validated
		EIRP in the range 960 – 1610 MHz (indoor and portable
FCC Part 15 Subpart F	\checkmark	devices)
		EIRP above 12.75 GHz (portable devices)
EN 301 489-33 v1.1.1	\checkmark	None
FCC Part 15.107-109	\checkmark	None

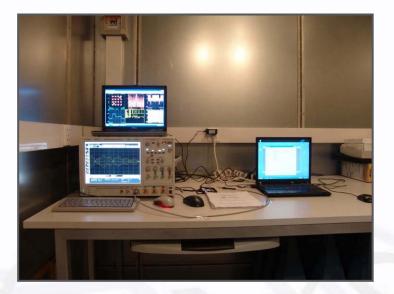




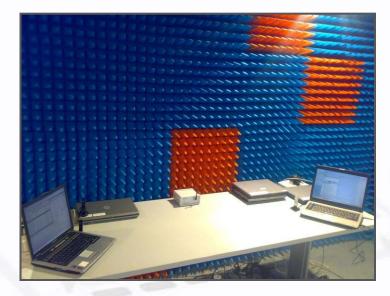
Testing Capabilities - CON

WALTER test bed **CON** services. The WALTER test beds check whether an UWB implementation is compliant to:

Test Specification	Version	Limitations		
WiMedia PHY Test Specification	1.0, 1.2	Lack of reference units		
WiMedia Platform Test Specification	1.1, 1.2	Checker for 1.2 is not available yet		



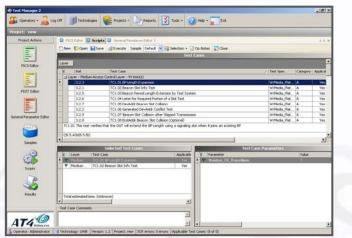
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Testing Capabilities - CON

WALTER has developed TX-RX test scripts for MAC testing

- Intended to be part of WiMedia Platform Certification program
- To be validated within WALTER and in certification events
- Replaces the previous and no longer supported WiQuest TX-RX scripts
- ✓ WALTER has developed an Automated MAC Test Tool
 - Intended to save testing time and avoid manual testing mistakes
 - Based upon validated test equipment (analyzers, generators, etc.)



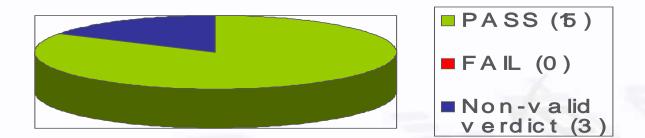
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WALTER offers **IOP** test services for:

- ✓ WALTER IOP MAC Test Specification
 - Developed within WALTER
 - Intended to check multi-vendor IOP at MAC level
 - Validated in a WiMedia certification event (Geneva, 2008)
 - Debugged and refined against real implementations





The **OTA** services offered by WALTER are:

- SDR: No SDR test specs have been specifically defined for UWB
- EFT: LOS and NLOS performance tests in office environments

WALTER offers **RPT** services for wireless technologies such as:

- o 2G/3G Cellular communications
- o WiMAX
- o Wi-Fi
- UWB (experimental trials only)





WALTER offers experimental **COE** test services for:

• WiMAX – UWB Coexistence

- Evaluation of performance degradation (BER, PER, etc.)
- Coexistence in UWB
 - Check whether two or more UWB devices can coexist in the channel

In terms of **PER**, the WALTER test beds can:

Evaluate performance degradation against T (sensitivity, power)



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WALTER has set up test services for broadband technologies

- Test services have been made more effective (automation)
- WALTER test services have been validated (intercomparison)
- WALTER test beds have produced inputs for standardization bodies (ETSI) and alliances (WiMedia)



Any questions?

