



OAI Project 1B Technical Committee #1

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OAI Project 1B PMC Agenda

- **Reminder : Project Structure & PMC mission**
- **Nomination of PMC Chair**
- **Project Dashboard**
- **Roadmap review**
- **PMC Decisions**

OAI Project structure

- **Project structure and management aligned with the OAI Technical Governance**
- **Project Management Committee**
 - Missions: reports status to Technical Committee, Proposes dev roadmap, test and integration process to the TC, ensure releases delivery.
 - PMC Chair : Fabrice Nabet (acting)
 - PMC members representative
 - Eurecom: Florian
 - TCL: Pierre, Zhenhong Li
 - Syrtem or individual: Patrick
 - Others : TBC
- **Contributors**
 - Eurecom: Raymond
 - TCL: Fabrice, Calvin, Yanbo, Wilson
 - Syrtem/individual: Benoit, Fabrice R.
 - IIT-H, TNO, TU-Dortmund, Fraunhofer - TBC

Project 1B Dashboard

Schedule

Ressources

Budget

Risks

Highlights :

- Process running : meetings, issue tracking, TNs, Gitlab rep., code reviews & autotests
- Interoperability and stability improvements : almost 10 L3 & Phy fixes, progress against CMW500 GCF
- Stability improved, up to more than 10 hours in Phy mode DL

Lowlights:

- wk39 delivery merged with W43 to : complete Periodic CQI, PHY/L3 part of 3GPP alignment and SRS on « harmony branch »
- MIMO and CA pushed due to overall technical scope and ressources allocation (Phy, L3)
- Interoperability testing against CMW500 taking more time than anticipated

Improvement action suggestions:

- 2016 Roadmap simplification : 2 deliveries, inc MIMO . CA only at study stage, No DRX
- Process harmonisation : 1 Gitlab rep, TN+code reviews, Autotests UE multiple run
- Interoperability anticipation: select 3 or 4 main configs to be tested (GCF, 2 real NW configs,...), set predefined configs (RRC default values, RLC AM, ...)

- **SW1 – wk 43: = previous wk43 delivery without MIMO**
 - 3GPP Rel9/10 alignment L2
 - L2 UL/DL stabilization
 - SRS
 - Periodic CQI/PMI and PUCCH 2/2a/2b
 - Paging : PHY/MAC/RRC
- **SW2 – wk 52 : MIMO, RRC ReEstablishment and Paging**
 - 3GPP Rel9/10 alignment PHY and L3
 - MIMO DL 2 Layers
 - RRC ReEstablishment
 - Paging NAS part
- **Carrier Aggregation : split study and benchmark Oct. 2016, code delivery early 2017 (date tbc)**
- **DRX : postponed to 2017**

FEATURE SUMMARY AND FORECAST (1/2)

FEATURE	DEVELOPERS	STATUS
L2 Stabilization	Calvin(TCL SH, L2) Fabrice(TCL FR, L2)	TNs and code review done Tested, need some adjustments. After discussion Fabrice will do additional tests during Calvin's holidays
3GPP Rel9/10 alignment	Fabrice(TCL FR, L2), IITH(India, PHY, L3)	L2 part submitted PHY TN draft done, Code starting L3 TN start
Periodic CQI/PMI, PUCCH 2x	Raymond(EUR, PHY), IITH(PHY support?)	Code Complete on Signal processing, not yet for PHY procedures. Test Status ? UE stability to improve for Harmony changes
Paging	Raymond(EUR, PHY/MAC), L3 (IITH ?, Other ?)	PHY/MAC Code Complete, no NAS. Not tested. Might be done on OAI eNB too (TBC). L3 ressource to be found asap UE stability to improve for Harmony changes

FEATURE SUMMARY AND FORECAST (2/2)

FEATURE	DEVELOPERS	STATUS
SRS	Haithem(TCL FR)	Coding Started
MIMO DL	Florian, Helena(EUR,PHY), Haithem(TCL FR, PHY), + 1 TCL FR PHY(TBC)	Periodic meetings, identified actions on dlsim,target, and procedures. More work to do than initially expected. Harmony changes to be stabilized for both eNB and UE as a prerequisite. If no 2nd PHY resource, delivery will be shifted to 2017
Carrier Aggregation	TBD	Study and agreements on new split architecture are required before starting any dev
RRC ReEstablishment	<i>Fabrice(L2), Calvin(L2), TCL SH L3</i>	Not started yet. Code changes are mainly protocole and can be handled in parallel with MIMO. Dependency with L3 resource available
DRX	TBD	Postponed to 2017. Interoperability use cases and system impacts not clarified yet

- **Autotests UE framework**

- Achievements : Internal delivery from SYRTEM to TCL Gitlab wk40 : alpha and beta versions
- Plan : Internal evaluation (TCL and Eurecom) and collaborative improvement before delivery to Project 1B wk43
- Objective : to be used as non regression tool by the 1B community and also whole OAI community

- **CMW500 tests**

- TCL FR: Gabriel since wk37 to run MLAPI/LLAPI tests suitable for OAI 1B features
- OAI UE Attach issues with CMW500 GCF test (Issue#21): interoperability issues found, some fixed, others are work in progress (PUCCH)
- Wish to have other locations with CMW500 or other test equipment for increasing test coverage

- **Interoperability**

- ASTRI eNB continuous testing : issues reported, some of them fixed by ASTRI
- Potential tests with Comm4Innov and Orange Lab : Target date to be defined with them.
- Re-involve TU-Dortmund ?

SUGGESTED ACTIONS TO TECHNICAL COMMITTEE

- **Discuss and agree on a new 2016 Roadmap**
 - Ensure SISO features and MIMO DL TM3/4
 - Postpone CA and DRX deliveries to 2017
- **Process harmonisation**
 - Move all UE dev and 1B support to Gitlab Eurecom 1B (licence issue)
 - Better communication and synchronization between contributors
 - Shorter and less risky integration process
 - All feature development should follow minimum process on documentation, code review and test
 - Autotests UE to be widely used by all contributors
 - Solve local blocking test equipment issues
- **Interoperability**
 - Preparation : Tests with more likely used configurations
 - Roadmap for testing with commercial eNB to set, preference for lab environment (eNB monitoring). Candidates = ASTRI eNB, Orange Lab, Comm4Innov, Nokia at TU Dortmund
 - Scheduling risk on 1B roadmap as ressources may be adressed for support during interoperability tests

Thank you!



Backup



OAI 1B OBJECTIVES

- **Make OAI UE an asset for the OSA**
- **Enable the community to use the UE in e2e projects**
- **Make it a building block for advanced features development as:**
 - Project 6. LTE-LAA
 - Project 7. Mobility Support
 - Project 8. New Waveforms
 - Project 10. Massive MIMO
 - Project 12. Proximity Services
- **Necessary steps :**
 - Stability
 - Interoperability with commercial NW
 - R8 / R10 minimum features completion – Cat 4/TM4

OAI 1B CONSTRUCTION KEY DATES

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- **May 17-18: Eurecom OAI Workshop : Presentation of UE required features and call for contributors**
- **May 30-31: TCL 5G Workshop Shanghai : Presentation of first Roadmap and Ressource Estimation**
- **July 12 : Official Project 1B Kick-Off**
- **July 20 : First OAI 1B periodic dev meeting**

- **Interoperability with commercial NW in SISO mode**
 - FDD and subset of TDD configuration
 - 5, 10, 15, 20 Mhz BW support
 - Access Stratum Release 9, UE Cat 4
- **MIMO support**
 - MIMO DL up to 2x2
 - TM3/TM4
 - All BW
- **Carrier Aggregation**
 - CA DL only, 2 CCs
 - Restricted number of tested combinations
- **TDD**
 - Restricted number of configurations
 - SISO, MIMO, CA
 - All BWs

TARGETTED TIMELINE 2016 ROADMAP

DELIVERIES	OAI 1B FEATURE	JULY				AUGUST					SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER						
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
SW1 (wk39)	L2 UL data procedure finalization	SH#1 + L3#1																											
	3GPP Rel9/10 CR alignment	FR#1 + L3#1 + PHY#1																											
	SRS															EUR#1													
	Phy Measurements : Periodic CQI/PMI and PUCCH 2/2a/2b															EUR#1													
SW2 (wk43)	Paging	EUR#1 + L3#1																											
	MIMO	ASTRI#1																											
SW3 (wk52)	DRX	FR#2 L2+R#3 PHY + SH#1 L2																											
	Carrier Aggregation DL 2 CC	FR#2 + SH#1 + L3#1 + PHY#1 + EUR#1																											
	RRC ReEstablishment	FR#1 + L3#2 + PHY#1																											

Commercial NW test proposal :
3 sessions

□ Ressources wk36

- TCL : FR#1(Fabrice), SH#1(Calvin),ASTRI#1(Wilson, MIMO TBC), FR#2 PHY (Haithem), SH#2 (2016Q3) L3?, FR#3 L2 ?,
- EURECOM : EUR#1(Raymond)
- IITH: PHY#1 + support to EUR1
- L3#1: needed ressources, IITH ?
- OAI 1B support : Yanbo(TCL SH, support TDD), SYRTEM(PHY perf support), ASTRI
- TU Dortmund (Interop tests?)

OAI 1B INTEGRATION TO OSA

- **Project structure and management aligned with the OAI Technical Governance**
- **Project Management Committee**
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 - PMC Chair : Fabrice Nabet (acting)
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- **Framework for better documentation, code quality and information sharing**
 - Feature primes
 - Technical Notes with review
 - Code reviews
 - OAI Workflow based
 - Visibility to feature roadmap and progress
- **Framework for enhanced testing**
 - Enhance Unitary tests
 - Enhance target test coverage : OAI eNB, CMW500, commercial eNB, etc...
 - Improve test level and spread target tests over the community : enhance and maintain non-regression and stability frameworks, distribute functional tests, etc ...
- **Framework for feature delivery**
 - Dedicated OAI 1B Gitlab
 - Integration process between developers and integrators before and after each delivery
 - Coordinated work with OAI 5G
- **Continuous tracking**
 - Periodic OAI 1B dev meetings
 - Feature progress and Bug tracking

PROCESS STATUS SUMMARY

ACTION	ACHIEVEMENTS	DIFFICULTIES/TO DO
Development	<ul style="list-style-type: none">• Some TNs and code on going• Resource allocation improving• OAI 1B Gitlab and TCL Gitlab ready to use	<ul style="list-style-type: none">• Intend contributors to follow quality process• Baselines in TCL and Eur repositories, legal stuff to complete• Resource allocation to complete(PHY, L3)
Tests / Integration	<ul style="list-style-type: none">• Continuous stability tests(SYRTEM,ASTRI,TCL)• Test Setup list• Issue tracking	<ul style="list-style-type: none">• UE Auto-test framework on going• Plan tests with third-party eNB• CMW500 enhanced usage plan• How to check test execution before feature delivery
Project Management	<ul style="list-style-type: none">• Periodic dev meetings• Wiki page with minimum infos: workflow, meeting minutes• Issue tracking ready	<ul style="list-style-type: none">• Lack of some inputs• Gitlab wiki page to enhance (docs, etc)• Internal TCL process to clarify• Technical Committee to meet

FEATURES STATUS SUMMARY

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TCL

FEATURE	DEVELOPERS	STATUS
L2 Stabilization	Calvin(TCL SH, L2)	On track, TNs, code changes being tested
3GPP Rel9/10 alignment	Fabrice(TCL FR, L2), IITH(India, PHY, L3?)	On track for L2 (TN), not started for PHY and L3
Periodic CQI/PMI, PUCCH 2x	Raymond(EUR, PHY), IITH(PHY support?)	Partly Code Complete but no TN
Paging	Raymond(EUR, PHY/MAC), L3 ?	Code Complete, no TN. L3 not started
SRS	Raymond(EUR, PHY)	Not started
MIMO DL	Raymond(EUR,PHY), ASTRI (PHY,L2,L3)?	PHY Code on going but split between Raymond and Florian, ASTRI role to discuss
Carrier Aggregation	TBD: Haithem(TCL FR, PHY) ?, new TCL SH(L2,L3) ? IITH (PHY)?	Waiting for new HW architecture design from SYRTEM

谢谢

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