

8th Management Committee Meeting

Podgorica, Montenegro
October 1-3, 2018



1. Welcome to participants
2. Adoption of agenda
3. Approval of minutes and matters arising of last meeting (MCM7, Cartagena)
4. Status of the Action
5. Review of action deliverables and final book
6. Report from the Grant Holder
7. Report from Training Manager (STSMs, Training Schools and Tutorials)
8. Report from Dissemination Manager
9. Future MCMs and Workshops
10. Presentation and Discussion of Technical Documents

11. Final book update
12. Reports from Working Group Chairs
13. Liaisons with International Bodies and Projects
14. AOB
15. Close of Meeting

Any change to the agenda ?

ATTENDANCE LISTS

Please sign the attendance list for **the day(s) you are present**

AND

ONE attendance list for **EACH** WG/EWG you attend

No reimbursement of travel expenses (for those entitled to)
if attendance lists are not duly signed

NEWSLETTER MEETING

Who ? Members of the steering committee

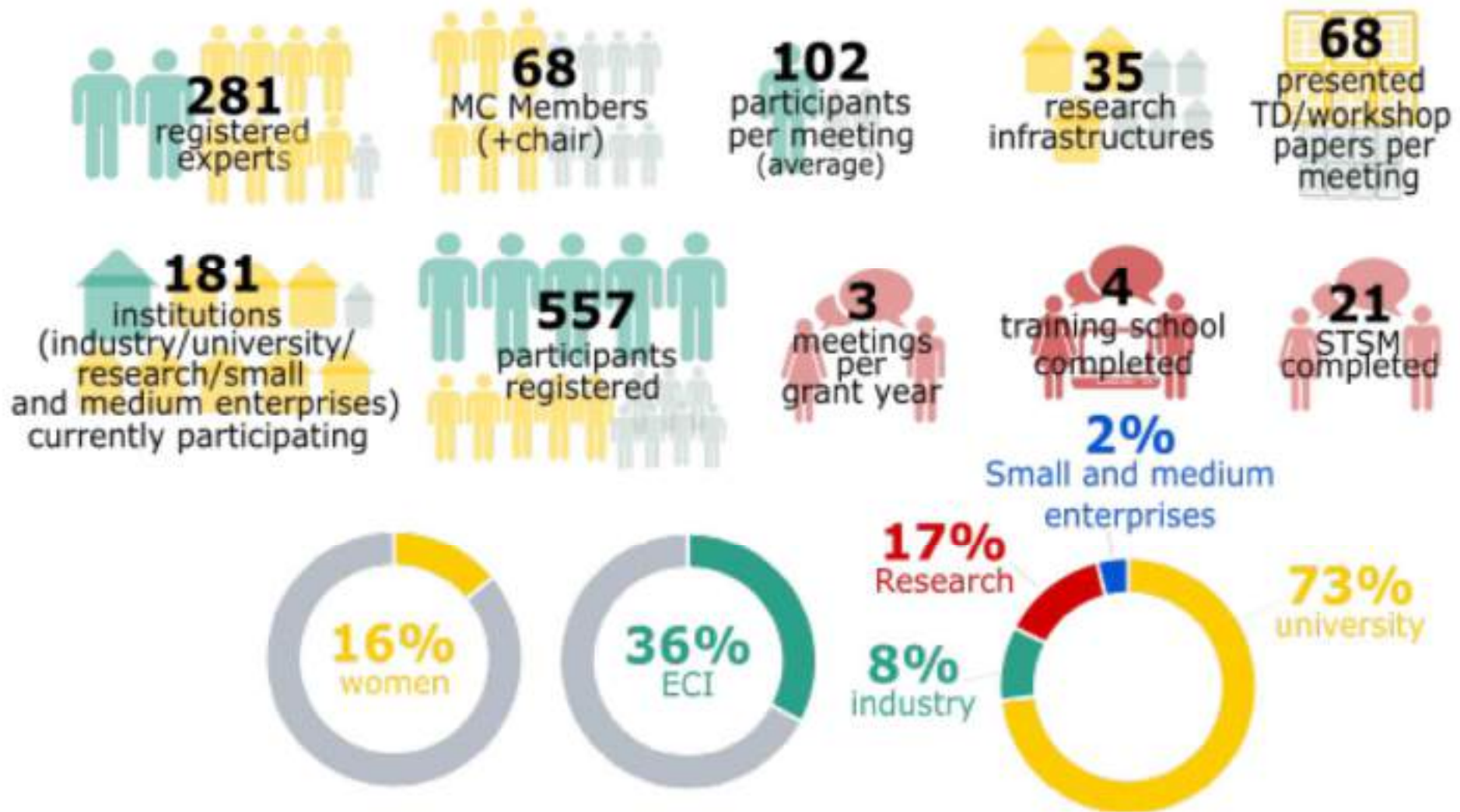
When ? Tuesday at 6 pm sharp

Where ? In Milica

Postponed to the next meeting

Partners

- Number of signatory countries : **35** (out of 36)
- Number of MC Members : **66** (+ Chair)
- Near Neighbour Country Institutions : **4** approved
 - National Research Tomsk Polytechnic University Russian Federation
 - YK State University of Grodno Belarus
 - RUDN University Russian Federation
 - University of Prishtina Kosovo
- International Partner Country Institutions :
 - ✓ **12** approved and activated, **2** pending
 - Beijing Jiaotong University China
 - Tokyo Institute of Technology Japan
 - Comsearch United States of America
 - NIST United States of America
 - Samsung Electronics Co. Korea, Republic of
 - Japan Advanced Institute of Science and Technology Japan
 - Motorola Mobility LLC United States of America
 - Universidad Icesi Colombia
 - Niigata University Japan
 - Northeastern University United States of America
 - CSIR South Africa
 - Huawei Device Company China
 - University of Canterbury **New Zealand**
 - ETS **Canada**



Partners (1)

- COST Country institutions
 - ✓ **Commitment to have contributions (TD, tutorial, etc.) at least at ONE meeting/training school per year**
 - ✓ **Deregistration from the internal website access if not fulfilled**
- Near Neighbour Country institutions
 - ✓ **Commitment to have contributions (TD, tutorial, etc.) at least at ONE meeting/training school per year**
 - ✓ **Deregistration from the internal website access if not fulfilled**

Partners (2)

- International Partner Country Institutions

When should we accept applications from NCIs?

COST rules: mutual benefit

Other criteria: scientific excellence (Universities)
role in industrial context (Industries)
technical topics and WGs addressed
geographic balance

- ✓ **Commitment to have contributions (TDs, tutorial, etc.) at TWO meetings/training schools per year**
- ✓ **Deregistration from the internal website access if not fulfilled**

Pending approvals

- University of Canterbury (NZ)
 - ✓ Representative: Dr Fred Samandari
 - ✓ Status: received, in process (signature missing, [received yesterday](#))
 - ✓ Decision (MCM7) was to accept conditionally (upon participation)

- ETS (QC, Canada)
 - ✓ Representative: Dr Ghassan Dahman
 - ✓ Status: [approved by the COST office](#)
 - ✓ Decision to be taken (MCM 8: approved) and motivated

Important Reminders: Reimbursement Eligibility

- MC meetings
 - ✓ Up to two MC members per COST Country
 - ✓ MC members can be replaced by officially nominated MC substitute, if the Chairman and GH receive request by given deadline
 - ✓ Eligibility priority for MC meetings
 1. All MC members who apply, or MC official substitutes, Action Chair, Secretary, invited speakers and ECI representative
 2. WG/EWG/SWG Chairs (while budget is available*)
 3. Non-MC members, presenting a TD, when replacing an MC member (while budget is available*)
 4. Other experts, one per country (while budget is available*)
- Technical meetings
 - ✓ Eligibility priority
 1. Action Chair, invited speakers
 2. WG/EWG/SWG Chairs (while budget is available*) in combination with COST policy priorities (inclusiveness/gender)
 3. Core Group members, Secretary (while budget is available*)

Important Reminders: Deadlines and Procedures

- TD submission
 - ✓ Request a TD number (usually **20 days** before the meeting)
 - ✓ Send to the secretary a full TD (**10 days** before the meeting) using the cover page available on the website

These deadlines are set to enable the StC to prepare the meeting schedule

- Meeting registration: two actions are required
 - ✓ Register on IRACON website (**20 days** before the meeting)
 - ✓ Accept the e-cost invitation

Important Reminders: Deadlines and Procedures

- Reimbursement (for those entitled to)
 - ✓ Accept the e-cost invitation
 - ✓ Fill the the e-cost and submit the claim (after the meeting)

The reimbursement procedure MUST take place on e-cost

- ✓ If you cannot attend but are replaced by an eligible substitute
 - Send a request to the Chair and GH (cc: secretary) at least **20 days** prior to the event to enable the reimbursement of your official substitute

Important Reminders: e-Mailing and Acknowledgment

- Usage of global reflector
 - ✓ From this meeting on, the global reflector (all_ca15104@iracon.org, **moderated**) should not be used to advertise events (outside those of the Action itself)
 - ✓ Ask Alice (a.baldini@unibo.it) to include your announcement on the IRACON Web Page
- WG reflectors have been created
- **Acknowledge COST CA15104 IRACON on all joint publications**
 - *This work was carried out in the framework of COST Action CA15104 IRACON*
 - *The authors acknowledge the fruitful discussions in COST Action CA15104 IRACON*

February 2018

[COST Academy](#) Training on **Using social media to communicate your research**
(Brussels, 6 Feb 2018)

IRACON represented by Luis Correia

March 2018

3rd IRACON Training School, jointly with IEEE VTS (Lisbon, 5-9 March 2018)

Beyond 5G Networks operating in the Millimetre Wavebands enabled by Joint
Analogue-digital Signal Processing

April 2018

COST Connect on “**How to shape a Sustainable Urban Mobility for all?**”
(Bucharest, 25-26 April 2018)

IRACON represented by Vasos Vassiliou (MC Cyprus)

April 2018

4th IRACON Training School, jointly with Met5G (Guildford, Surrey, 16-17 April 2018)
Defining and Realising SINR in Future Mobile Networks

May 2018

7th MCM (Cartagena, 30 May-1 Jun 2018)
Organized by Jose Molina-Garcia-Pardo
98 participants
Training seminar on "RF Localisation Techniques" (jointly organized with ITN
WIBEC)

June 2018

EuCNC 2018 COST/IRACON special sessions (Ljubljana, Slovenia, 18-21 June)
IRACON represented by Gordana Gardašević and Claude Oestges

September 2018

PIMRC 2018 (Bologna, Italy, 9-12 Sep)

IRACON workshops and special sessions

September 2018

COST Academy Webinar on "How to Promote International Cooperation in your Action" (19 Sep)

IRACON represented by Conchi Garcia Pardo

October 2018

8th MCM (Podgorica, 1-3 Oct 2018)

Organized by Enis Koçan

49 TDs

1 invited speaker

76 participants

November 2018

COST Action Sustainability networking event (Brussels, 29 Nov 2018)

Motivation letter sent

Dissemination Actions: IRACON Special Sessions

- **PIMRC 2018, Bologna, Sep 9-12, 2018**
 - **4 special sessions were organized by IRACON members**
 - ✓ Spectrum Management for 5G Systems: Reference Models and Field Trials
 - ✓ UAVs for Future Wireless Networks
 - ✓ Deterministic Propagation Modelling and Channel Characterization for 5G and Future Wireless Systems
 - ✓ Electromagnetic Exposure in 5G Networks
- **SPAWC 2018, Kalamata (Greece), 25-28 June 2018**
 - ✓ Advances in Wireless Communications through Experimentation, organized by Florian Kaltenberger and Ana García Armada

Dissemination Actions: IRACON Workshops

- **EuCNC 2018: Joint IRACON-Clear5G-5Gcar Workshop on Vertical Industries & Applications for 5G (VIA5G), Ljubljana, 18 June 2018**
 - ✓ Workshop organizers: Haibin Zhang, Klaus Moessner, Woon Hau Chin, Erik Ström, Chiara Buratti
 - ✓ IRACON speaker: Claude Oestges
- **IEEE PIMRC 2018: Joint IRACON-WIBEC Workshop on Wireless Body Communications in Medicine (WIBCOMM), Bologna, 9 Sep 2018**
 - ✓ Workshop organizers: Concepcion Garcia-Pardo, Narcis Cardona
- **PIMRC 2018: Joint IRACON-5GIC Workshop on Millimetre Wave Communications, Bologna, 9 Sep 2018**
 - ✓ Workshop organizers: Reiner Thomä, Harris Pervaiz
- **PIMRC 2018: IRACON Workshop on V2X Communications and Channel Modeling**
 - ✓ Workshop organizers: Christian Schneider, Massimo Condoluci
- **PIMRC 2018: IRACON Workshop on UAV Communications for 5G and Beyond**
 - ✓ Workshop organizers: Chiara Buratti, et al.

Dissemination Actions: Participation in COST-organized Special Sessions

- **5th European Conference on Sustainable Urban Mobility Plans - Planning for Multimodal Cities, Nicosia, May 14, 2018**
 - ✓ COST special session (organized by Mickaël Pero)
 - ✓ IRACON represented by Vasos Vassiliou (MC Cyprus)
- **EucNC 2018, Ljubljana, June 18-21**
 - ✓ COST special session (organized by Ralph Stübner)
 - ✓ IRACON represented by Gordana Gardašević (MC Bosnia-Herzegovina)
- **ICT 2018, Vienna, Dec 4-6, 2018**
 - ✓ COST networking session (organized by Ralph Stübner and Karina Marcus)
 - ✓ IRACON represented by Claude Oestges

M25 Monitoring Report

At month 25 of the Action's lifetime, the Action Chair on behalf of the Action MC submits the Action Progress Report, which includes information on the activities of the Action up to month 24 of the Action's lifetime. The Action Rapporteur submits a Progress Review remotely, after receiving the Action Progress Report.

The main objective of the external monitoring is to provide an assessment of the progress of the COST Action with relation to the:

- implementation of networking activities;
- development of S&T activities towards the Action's MoU objectives;
- achievement of MoU deliverables,
- achievement of additional outputs / achievements, including projects resulting from Action activities and co-authored Action publications⁹ by at least two Action participants from two countries participating in the Action, that are on the topic of the Action and for which the networking was necessary;
- impacts of the Action (the short- to long-term scientific, technological and / or socioeconomic changes produced by the Action, directly or indirectly, intended or unintended);
- dissemination and exploitation of Action results;

In addition, information is collected on Action success(es), and where necessary, corrective measures / recommendations are suggested by the Action Rapporteur.

Monitoring of the implementation of COST Excellence and Inclusiveness Policy (Section 5) may be repeated as requested by the assessment of Progress Report at 12 months.

In case the COST Action fails to comply with their reporting obligation or does not take the necessary measures to address issues identified by the Rapporteur, the COST Association may delay the signing of the Action Grant Agreement for the following Grant Period, and / or notify the CNC of the Action Chair.

M25 Monitoring Report Review

The number of workshops, short term scientific missions, training schools, and publications in the most prestigious journals and conferences on signal processing and wireless communications is a clear indication that the Action is fulfilling the objectives set in the memorandum of understanding for the implementation of the COST action. The research is addressing most of the challenging topics for 5G networks and beyond. For the remainder of the action, the researchers could also consider the timely topic of machine learning for communications, which seems largely absent in the list of publications available on the website. The only minor concern is that one of the deliverables promised by April 2018 is not yet available.

The level of ambition of the MoU objectives was **Low**.
Overall, **all MoU Objectives are progressing appropriately**.

Validity, relevance and significance (in particular importance and timeliness) of the impact reported by the Action: IRACON is addressing important problems in wireless communications, which clearly has had a profound impact on the society. However, the potential contributions of IRACON to the society is indirect. The action has been developing enabling technologies that might find their way into future products. Therefore, it is not clear why the "expected timing of impact" is by the end of the Action.

The website is adequate. However, in the spirit of reproducible research, the impact could be higher if code used in the simulations of the publications were available.

There were many highly effective Action activities focusing on dissemination of Action results [Excellent]
There were many highly effective Action activities focusing on exploitation of Action results [Excellent]

M25 Monitoring Report Review

Other matters

Difficulties in implementing the Action

The Action Rapporteur made the following observations regarding difficulties in implementing the Action: One deliverable intended for April 2018 seems to be missing. Otherwise, I have no additional comments because the action seems to have achieved the expected progress.

Emerging topics / developments in the field of the Action

The Action reported the following emerging topics / developments in the field of the Action.

- This information will be provided in the final report of the Action.

The Action Rapporteur made the following comment on the emerging topics / developments in the field reported by the Action.

- Nothing to comment as the information will be provided later. The action also seems to be covering most of the important challenges of 5G networks. However, some topics that have been gaining attention by the international bodies could receive more attention (e.g., machine learning applied to communication systems)

Action Rapporteur

This Second Progress Report was submitted on 2018-08-20 by:
Dr Renato Luis Garrido Cavalcante
Fraunhofer Heinrich Hertz Institute
Germany

Technical deliverables for the first two years

- **Deliverable 1 (M14, May 2017):** Working Groups first year term annual report summarising the achievements of every WG → **all WGs**
- **Deliverable 2 (M20, November 2017):** Overview of IRACON Reference Scenarios and assessment of 5G radio access techniques through experimental platforms → **WG3, EWG-RA**
- **Deliverable 3 (M24, March 2018):** Submission to international bodies of contributions about concerted 5G radio channel models → **WG1**
- **Deliverable 4 (M24, March 2018):** Collaborative white paper on new localization techniques suitable for 5G and the Internet of Things → **EWG-LT+IoT**
- **Deliverable 5 (M26, May 2018):** Working Groups second year term annual report summarising the achievements of every WG → **all WGs**

Technical deliverables for the last two years

- **Deliverable 6** (M36, March 2019): Collaborative white paper on future architecture and protocols for the Internet of Things → **EWG-IoT**
- **Deliverable 7** (M38, May 2019) : Working Group third year term annual report summarising the achievements of every WG → **all WGs**
- **Deliverable 8** (M42, September 2019): Technical inputs and liaison statements to Standardisation Groups on metrics for Over the Air (OTA) testing
→ **EWG-OTA**
- **Deliverable 9** (M42, September 2019): IRACON concerted radio channel models for 5G and beyond (draft book chapter) → **WG1**
- **Deliverable 10** (M50, May 2020): Working Group final report summarising the achievements of every WG in the overall Action (draft book) → **all WGs**

Deliverable 5 was delivered late !

- **Edition**
 - ✓ WG chairs are the contributors
 - ✓ Chair and Vice-Chair are the editors
- **Content**
 - ✓ 1 page per WG/meeting
 - ✓ Scientific results and dissemination activities (no equations !)
 - ✓ Will be published on IRACON website
- **Schedule: provided late**
 - ✓ Draft version by April 22, 2018 → received last inputs August 8, 2018
 - ✓ Delivery by May 31, 2018 → delivered August 30, 2018

Timeline

- During Cartagena meeting, each WG discusses about a list of sections
- After Cartagena meeting, the WG chairs finalize the discussion and propose the list of sections to the Chair
- Integration of all sections into a set of coherent chapters by the BEC
- **The ToC is frozen at Podgorica meeting (40 pages per chapter)**
- **Chapter and section editors are identified at Podgorica meeting**
- **The first draft of the book is ready by April 2019**

Book Publisher

- Search starting after Podgorica
 - Rivers ? Elsevier ? Cambridge ? Wiley ? Springer ? ... ?

Book Editor(s)

- Claude Oestges (+ ?)

Draft Table of Content

1. Introduction

2. Radio channels and models

2.1 Radio channels (**includes body channels**)

2.2 Channel models

3. Radio measurements and channel parameterization

3.1 Measurements of electric properties of materials for channel simulators

3.2 Measurement Scenarios

3.3 Measurements and estimation of channel parameters in the mm wave and THz bands

3.4 MIMO channels

3.5 High speed channels

3.6 Algorithms for estimation of radio channel parameters

Draft Table of Content (2)

4. Coding and processing for advanced wireless networks

- 4.1 Advanced waveforms, coding and signal processing
- 4.2 Distributed and cooperative PHY processing in wireless networks
- 4.3 Implementation and HW driven solutions

5. 5G and Beyond Networks

- 5.1 Introduction to future network architecture
- 5.2 Cloud RAN
- 5.3 SDN and NFV
- 5.4 HetNets and Ultra Dense Networks
- 5.5 Scheduling and RRM
- 5.6 Spectrum Management and Sharing
- 5.7 Wireless Connectivity
- 5.8 Scenarios

Draft Table of Content (3)

6. OTA

6.1 Field emulation for electrically large test objects

- Emulating wide angular spreads
- Emulating narrow angular spreads

6.2 Emulation of mmWave channels

- Non-spatial fields
- Spatio-temporal fields

6.3 Emulation techniques for testing hardware internals

Draft Table of Content (4)

7. IoT chapter

- 7.1 Low Power Wide Area Networks, Multihop Networks
- 7.2 SDN-Based IoT Networks
- 7.3 Routing and MAC Protocols for (Industrial) IoT
- 7.4 Vehicular Communications
- 7.5 UAV-Aided Wireless Networks
- 7.6 Special applications of IoT (military, border guard, police,...)

8. IoT Health Chapter

- 8.1 Nano-communications
- 8.2 Wearable and implantable IoT-Health Technology
 - **Channel measurements, modelling and antennas**
 - **Human body phantoms and SAR measurement**
- 8.3 IoT-Health Applications

Draft Table of Content (5)

9. Localization and tracking

9.1 New application scenarios and user requirements

9.2 Technical Challenges

9.3 Expected features and limitations of 5G and IoT with respect to requirements

9.4 Channel modeling and multipath exploitation

9.5 Positioning methods, data fusion, and tracking

9.6 Measurement acquisition, modeling, and performance limits

9.7 System study, system-level performance analysis and performance limits

9.8 Testbed and prototyping activities

10. Radio Access

New secretary (from Sep 1, 2018)

→ Alice Baldini



IC1004 level 2 audit

Implications for IRACON

Grant Holder



Secretary

Miss Alice Baldini

Work and Budget Plan for Y3

Networking Tool	Description	Budget
Meetings	3 MCMs	131 350.00 EUR
Training Schools	2 TS	19 960.00 EUR
STSMs	At least 12 STSMs	14 400.00 EUR
ITC Conference Grants	Conference grants	4600.00 EUR
Other Expenses Related to Scientific Activities	Bank fees	976.50 EUR
Total Science Expenditure		171 286.50 EUR
Financial and Scientific Administration and Coordination (MAX. 15%)	15 %	25 692.98 EUR
Total Grant		196 979.48 EUR

Grant Holder



Secretary

Miss Alice Baldini

Updated situation

Steps		Budget
Total Grant		196 979.48 EUR
1st Instalment received (August)	50 %	98 489.74 EUR
Reimbursements for Cartagena (to be made right after Podgorica)		38 660,12 EUR
ITC Conference Grants (to be made right after Podgorica)	three	2 025.00 EUR
STSMs (to be made right after Podgorica)	two	1 920.00 EUR
Available funds after payments will be made		55 884.62 EUR
Estimated cost of Podgorica	44 people	35 200.00 EUR
UNDERSPENDING BY APPROXIMATELY		11 600.00 EUR

EURACON

Executive Assistant
Miss Alice Baldini

Updated situation

EURACON FOR IRACON		Budget
Surplus after Cartagena		303.03 EUR
Current budget		3 786,13 EUR

Proposed changes to the budget allocation

1. Increase the LOS for Dublin and Lyon training schools (1000 EUR → 3000 EUR) in order to reduce the participation to LO paid by participants

OK

2. Increase the number of training school grants (+ 3000 EUR per TS) **OK**

3. Increase the number of STSM and the max budget per STSM (1200 EUR → 1500 EUR) **OK**

ITC conference grants

What ? Grant to **partially** cover expenses for attending a conference (preferably in Europe) related to IRACON

Whom ? ECIs from Inclusiveness Target Countries* presenting a paper/poster

How ? Apply **on e-cost** at least 45 days before the conference but after the paper is accepted (as a proof of acceptance is needed)

Criteria (evaluated by Action Chair and ECI Rep)

- IRACON special sessions and workshops at international conferences
- Other flagship international conferences related to IRACON objectives
- CV and IRACON involvement of the applicant
- Quality of the paper

* Bosnia-Herzegovina, Bulgaria, Cyprus, Czech Republic, Estonia, Croatia, Hungary, Lithuania, Latvia, Luxembourg, Malta, Montenegro, Poland, Portugal, Romania, Slovenia, Slovakia, the former Yugoslav Republic of Macedonia, Republic of Serbia and Turkey

Training Schools

2017/2018

4th Training School: IRACON/Met5G Training School – April 16-17, 2018
Guildford, Surrey, UK

3rd Training School: VTS PT Chapter/COST-IRACON Joint Winter School on
Beyond 5G Networks operating in the Millimetre Wavebands enabled by Joint
Analogue-digital Signal Processing – March 5-9, 2018 Lisbon, Portugal

2nd Training School: ESoA/COST-IRACON Joint Training School on Large Scale
Radio Propagation – June 12-16, 2017 Louvain-La-Neuve, Belgium

2016/2017

1st Training School: WIBEC/COST-IRACON Joint Training School on Antennas
and Propagation Modeling for Body Environment Communications – May 1-3, 2017
Dresden, Germany

Training Schools – Grant period 3

IRACON Winter School on Information Theory and Signal Processing for Internet of Things

Dates – 18-22 Nov 2018

Host – Lyon, France. Jean-Marie Gorce, Laurent Clavier

Speakers

- Christophe Fournet (Sigfox) Welcome speech – Sunday Evening !
- Jan Sykora (Prague) – Network coding.
- Maël Le Treust (Paris – Cergy Pontoise) – Strategic Communication and Persuasion
- Chiarra Buratti (Bologna) – About MAC & Network layers
- Petar Popovski (Aalborg) - Principles of Wireless Access for Ultra-Reliable Low Latency Communication (URLLC)
- Marco Di Renzo (Centrale-SUPELEC, Paris Saclay) – About Stochastic Geometry
- Jean-Marie Gorce (Lyon)– Short packets & Information Theory
- Malcolm Egan (Lyon), Laurent Clavier (Lille) – Communication in Dynamic Interference
- Leo Cardoso, Guillaume Villemaud (Lyon) – Experiment on Cortex Lab

Training Schools

2020 Joint Winter School on System Level Optimization and Waveforms in Radio Communication Networks for 5G and Beyond” postponed to beginning of 2020

Expecting something in February/March or April 2019

Expecting something in October/November 2019

STSMs for GP1

Spain (x2), Austria, Denmark (x2), Croatia, Belgium, Italy (x3), Germany (x2), France (x3), Finland (x2), Portugal, Bosnia and Herzegovina (x2)

1. Multi-bands MIMO dual-Pol measurements and characterization of Radio Propagation for future 5G and B5G Wireless systems
2. Spatial Consistency in 5G Radio Channel Propagation mm-wave Spectrum
3. Characterization and Modeling of the MIMO Radio channel in the W-band
4. Concealed, Chassis Integrated, Pattern Reconfigurable, Automotive Antenna
5. Over-the-air performance evaluation of massive MIMO antenna systems in anechoic chambers
6. Implementation and measurement of 5G waveform candidate using OpenAirInterface
7. Introducing Multiple UAV Trajectories in UAV-Aided B5G Networks
8. Impact of Radio Channel on the Performance of ALOHA-based Medium Access Control Schemes
9. Experimental Characterization of Joint Scheduling and Routing algorithm over 6TiSCH
10. Performance Evaluation of MCF (minimum cost forwarding) and SRMCF (source routing MCF) routing protocols over 6TiSCH (IPv6 over the TSCH mode of IEEE 802.15.4e)

STSMs for GP2

11 accepted – 2 rejected – 1 cancelled

Sweden (x5), Belgium, Austria (x2), UK, Finland, Spain (x3), Poland (x2), Portugal (x3), Italy, Russia, France, Germany

1. Measurement and Characterisation of a Real-Time Channel Emulator based on a Software Defined Radio
2. Characterization and design of mm-wave antennas for 5G
3. Polarised Off-body Channel Measurements with Dynamic User
4. Simulations of the radio channel in off-body communications in a passenger ferry environment
5. 5th Generation (5G) Communications: Parameterizing COST2100 at 60 GHz for the establishment of simplified user scheduling for Massive MIMO
6. Full-Duplex device-to-Device Communications
7. Implementation of Low-complexity Hybrid Analogue-digital Solutions in CAP-MIMO
8. Power-efficient and reliable mm-wave communications in dynamic environments
9. Design RF devices in millimetres with glide-symmetry structures
10. Tactile internet enabled Drone Control over LTE for Ultra-Dense Cloud Drone Networks
11. Elaboration and description of multipath propagation for mmW

STSMs for GP3

7 submitted - 3 accepted – 3 rejected – 1 still under review

Belgium (UCLouvain, ICTeam) → **Spain** (Barcelona, CTTC)

New channel estimation algorithms at the physical level to improve the performance of future communications systems relying on the use of a new waveform.

Danemark (Aalborg University) → **Croatia** (University of Split - FESB)

Utilization of Advanced RFID Physical Layer Modeling for the Design of Advanced Reception/Transmission Algorithms

Spain (Barcelona, CTTC) → **USA** (Northeastern University, Boston, MA)

Robust Bayesian Parametric/Nonparametric Statistical Inference for Indoor Localization, Tracking and Navigation

Rejection reasons

1. Not enough experience (Master Students) → and a risk of non continuity
2. Topics a bit far from the core of the activities (antenna design)
3. Involvement in the action questionable ...

STSMs for GP3

Still some space (at least 9 !)

... but ...

Involvement in the action has to be clear

Opening new ways are of course good ideas as long as they are in the action objectives and clearly contribute to the networking of active users, which does not mean “old” in the action.

Beside, due to the e-cost tool I would ask you to send me a copy of the workplan including the requested budget (max : 1500€). The work that will be achieved during the mission must be detailed but also the preparatory work and the outputs (including a TD !)

Dissemination in IRACON

Any other idea to foster the dissemination of the Action ?

How to improve the participation in the EuCNC COST special session ?

Publication list on iracon.org

- Should the list include only accepted papers or submitted papers as well ?
 - No, only accepted papers to be mentioned → ALL: update the list by sending new papers to Alice

Upcoming Meetings

- **9th IRACON MC/technical meeting and ??? workshop**
 - ✓ DCU Dublin (EI), 16-18 January 2019
 - ✓ Organizer: Conor Brenan
- **10th IRACON MC/technical meeting and ??? workshop**
 - ✓ Spring 2019
 - ✓ Detailed offer received so far from U Oulu/Keysight (FI), 27-29 May 2019
 - ✓ Initial offer from JCT/Tel-Aviv/Jerusalem (IL)

Future Meetings

- **11th IRACON MC/technical meeting and third ??? workshop**
 - ✓ Proposed dates: 4-6 Sep 2019
 - ✓ Gdansk University (PL)
 - ✓ Organizer: Slawomir Ambroziak

- **12th (final) IRACON MC/technical meeting and 4th ??? workshop**
 - ✓ Early 2020 (before March 22)
 - ✓ Offers from Belgium (UCLouvain and/or UGent)

There are 49 TDs to be presented

Working Groups discussions should include

- Next deliverables (Spring 2019)
- Training School proposals/topics for 2019 and beyond
- Joint activities with H2020 projects
- Tutorial offers for upcoming meetings
- **Final book chapter sections + section editors**
- Joint activities (experiments, papers, etc.)
- Short Term Scientific Missions among participant institutions

- Any other idea to foster the dissemination of the Action ?

**Management Committee Meeting
resumes on
Wednesday at 11:30**

Timeline

- During Cartagena meeting, each WG discusses about a list of sections
- After Cartagena meeting, the WG chairs finalize the discussion and propose the list of sections to the Chair
- Integration of all sections into a set of coherent chapters by the BEC
- **The ToC is frozen at Podgorica meeting (40 pages per chapter)**
- **Chapter and section editors are identified at Podgorica meeting**
- **Claude Oestges will distribute templates (latex) before Oct 30, 2018**
- **The first draft of the book is ready by April 2019**

Book Publisher

- Search starting after Podgorica
 - Rivers ? Elsevier ? Cambridge ? Wiley ? Springer ? ... ?

Book Editor(s)

- Claude Oestges (+ ?)

Draft Table of Content

1. Introduction

2. Propagation channel modelling methods and tools

2.1 Radio propagation environments

2.2 Channel modelling approaches

2.3 Algorithms for estimation of radio channel parameters

3. IRACON measurements and channels

3.1 Measurements of electric properties of materials for channel simulators

3.2 Measurement scenarios

3.3 Measurements and estimation of channel parameters in the mm wave and THz bands

3.4 MIMO channels

3.5 High speed channels

Draft Table of Content (2)

4. OTA

4.1 Field emulation for electrically large test objects – Pekka Kyösti

4.2 Emulation of mmWave channels – Moray Rumney

4.3 Emulation techniques for testing hardware internals – Wim Kotterman

5. Coding and processing for advanced wireless networks

5.1 Advanced waveforms, coding and signal processing – Andreas C., Laurent C.

5.2 Distributed and cooperative PHY processing in wireless networks – Alister B., Jan S.

5.3 Massive MIMO – Fredrik Tufvesson

5.4 Implementation and HW driven solutions and full duplex communications – Mark Beach,
T. Werner

Draft Table of Content (3)

6. 5G and Beyond Networks

6.1 Introduction – Silvia + Hamed

6.2 Wireless connectivity – Gordana, ... (Yoram ?)

6.3 Spectrum management and sharing – Konstantinos, Fernando (+ Paolo, Valeria ?)

6.4 Scheduling and RRM – Arie, ?

6.5 5G platforms – Florian + WG2

6.6 HetNet and UDN – Fernando, Rui Paulo

6.7 CRAN – Luis + EWG2

6.8 SDN and NFV – Behnam, Hamed

6.9 UAVs – Chiara (+ Margot ?)

6.10. Application domains and solutions – Haibin

Draft Table of Content (4)

8. *IoT Chapter*

8.1 Low Power Wide Area Networks – Luca Feltrin (UniBO), Laurent Clavier (ULILLE)

8.2 Routing and MAC Protocols for IoT – Gordana Gardašević (UNIBL), ??

8.3 Vehicular Communications – Erik Strom (Chalmers), Thomas Blazek (TU Wien)

8.4 Energy Efficient/Constrained Solutions for IoT – Lazar Berbakov (PUPIN), Carles Anton (CTTC)

8.5 Software Defined Networking and Virtualization for IoT – Chiara Buratti (UniBo), ??

8.6 Special Applications of IoT – Piotr Rajchowski (GUT), Haibin Zhang (TNO)

9. *IoT Health Chapter*

9.1 Nano-communications – Paweł Kułakowski

9.2 Wearable and implantable IoT-Health Technology

- Channel measurements, modelling and antennas – Krzysztof K. Cwalina, Kenan Turbić
- Human body phantoms and SAR measurement – Conchi Garcia-Pardo

9.3 IoT-Health Networking and Applications – Gordana Gardašević, Konstantinos Katzis

Draft Table of Content (5)

10. Localization and tracking

10.1 Introduction – Carles Anton and Klaus Witrissal

10.2 Measurement acquisition, modeling, and performance limits – Wout Joseph

10.3 Positioning methods, data fusion, and tracking

10.4 Channel modeling and multipath exploitation

10.5 System study, system-level performance analysis and performance limits

10.6 Testbed and prototyping activities – Carles Anton and Klaus Witrissal

DWGs

1. WG-1 (radio channels): Sana Salous and Katsuyuki Haneda
2. WG-2 (PHY-MAC): Hanna Bogucka and Jan Sykora
3. WG-3 (NET): Silvia Ruiz and Hamed Ahmadi

EWGs

1. WG-OTA: Wim Kotterman and Moray Rumney
2. WG-IoT: Erik Ström and Chiara Buratti
 - ✓ SWG IoT-Health: Slawomir J. Ambroziak and Kamran Sayrafian
3. WG-LT: Carles Anton and Klaus Witrissal
4. WG-RA: Florian Kaltenberger and Mark Beach

List of liaisons with international bodies, standards and projects

- **3GPP** – Aki Hekkala
- **URSI** – Sana Salous
- **ITU-R** – Sana Salous and Belen Montenegro
- **H2020 5G-XCAST** – Narcis Cardona
- **H2020 5G X-haul** – Mark Beach
- **CommNet** (EPSRC network) – Mark Beach
- **IEEE 1900.6** – Kostas Katzis
- **EurAAP** – Claude Oestges
- **EURACON** – Roberto Verdone
- **WiBEC** – Conchi Garcia
- **5G initiative** – Fernando Velez
- **Met5G** – Tim Brown
- **Clear5G** – Haibin Zhang
- **Wavecombe** – Sana Salous/Narcis Cardona
- **5G-VINNI** – Per Hjalmar Lehne
- **5G-EVE** – Florian Kaltenberger

Upcoming Meetings in 2019

- **9th IRACON MC/technical meeting**
 - ✓ DCU Dubin (EI), 16-18 January 2019
 - ✓ Organizer: Conor Brenan
 - **book your flight early**
- **10th IRACON MC/technical meeting + workshop ?**
 - ✓ U Oulu/Keysight (FI), 27-29 May 2019
 - ✓ Organizers: Janne Lehtomäki, Pekka Kyosti
- **11th IRACON MC/technical meeting + joint workshop with RECODIS ?**
 - ✓ Gdansk University (PL), 4-6 Sep 2019
 - ✓ Organizer: Slawomir Ambroziak

Follow-up action

Ideally, the proposal for a follow-up action should be submitted in Sep 2019

→ Proposal needs to be ready by June 2019 (i.e. tomorrow)

- Anyone with ideas for a new action *framework* → send me an email before 15 November 2018
- Anyone willing to participate in the writing OR reviewing → send me an email before 15 November 2018
- Anyone possibly interested in chairing a new action → send me an email (open call)

Action points

AP	WHAT	WHO	WHOM	WHEN
9/1	Submit reimbursement forms	Those entitled to	e-cost	Oct 14
9/2	Send Minutes of Group Meetings	Group Chairs	Chair + Secretary	Oct 14
9/3	Send STSM Applic.	Those interested	e-cost + Training Chair	Open call
9/4	Send ITC Conf. Grant Application	ITC ECIs	e-cost + Action Chair	Open call

Action points

AP	WHAT	WHO	WHOM	WHEN
9/5	Register to 9th MCM	Attendees	Website	Dec 17
9/6	Request TD number	Authors	Website	Dec 17
9/7	Submit TD	Authors	Website	Jan 8

Thank you !

See you in
Dublin, Ireland
Jan 16-18, 2019

