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	Titel	Authors		Keywords
TD(11)01001	Block Acknowledgment Mechanism for Wireless Sensor Networks	Norberto Barroca, IT, UBI Fernando J. Velez, IT, UBI João M. Ferro, IT, UBI Luís Borges, IT, UBI António S. Lebres, UBI	WG3 – Radio Networks	Wireless Sensor Networks, Block Acknowledgment, MAC protocol.
This paper proposes and analyses a block acknowledgment (BACK) mechanism for Wireless Sensor Networks (WSNs). This BACK mechanism enables the aggregation of several acknowledgment (ACK) responses into one special packet. A contention based random medium access control (MAC) protocol with multiple nodes sharing the same medium is considered. The Sensor Block Acknowledgment (SBACK)-MAC protocol will be evaluated in terms of energy consumption and end-to-end delay. The use of an adaptive listening (AL) mechanism, enables nodes to stay alert after the communication between two neighbour nodes (before going to sleep). The considered scenario includes the use of different topologies as well as different radio transceivers. The radio transceivers operating in the 2.4 GHz band have better performance when compared with those using the 900 MHz band. The ones that operate in the 2.4 GHz band have much higher data rate. The simulation results show that the SBACK-MAC in a star topology can reduce the energy consumption by more than 10 % in comparison with the S-MAC for the radio transceiver that operates at 900MHz, and more than 52 % at 2.4 GHz. By considering a 10-hop linear topology, the SBACK-MAC protocol achieves slightly better results in terms of end-to-end delay (with and without AL), when compared with S-MAC.				
TD(11)01002	Analytic Multi-User MIMO Channel Modeling: Subspace Alignment Matters	Nicolai Czink, FTW Bernd Bandemer, Stanford University Claude Oestges, UCL Thomas Zemen, FTW Arogyaswami Paulraj, Stanford University	WG1 – Radio Channel	MIMO; interference; analytical radio channel model
For a receiver that observes a mixture of desired and interfering MIMO transmissions, not all interference is created equal: its severity is modulated by the degree of alignment between the eigenspaces of the desired and undesired channel matrices. An analytical channel model is proposed to account for this effect. Two metrics of eigenspace compatibility are studied, and a method to generate channels of given degree of compatibility is derived. The resulting model is parameterized using radio channel measurement data, and an implementation recipe for immediate use of the model is provided.				
TD(11)01003	MIMO/OTA Test Methodology Consideration for Small Anechoic Chambers	Fanny Mlinarsky, octoScope, Inc.	WG1 – Radio Channel	MIMO/OTA, anechoic, channel models
This presentation will address the need to define MIMO/OTA test methodology appropriate for small anechoic chamber formfactor. It will elaborate on the limitations of small chambers vs. conventional walk-in chambers and the need for channel models with limited angular spread.				
TD(11)01004	Multipath Simulator Measurements of Throughput with Different Angular Distributions of Delay	Juan Diego Sánchez-Heredia, Technical University of Cartagena (UPCT) Paul Hallbjörner, SP Technical Research Institute of Sweden Thomas Bolin, Sony Ericsson Mobile Communications AB	WG1 – Radio Channel	Power delay profile, Multipath channels, Throughput.

Power delay profile is one of the characteristics of a communication channel. It is usually described as a number of taps at certain points in time. Each tap is associated with a signal path, having a certain angle-of-departure/arrival as seen from the user terminal. Variation in the terminal radiation pattern over angle means that the taps are weighted depending on their angles-of-departure/arrival. This paper presents an investigation of how the weighting of the delay taps by the radiation pattern affects throughput. HSDPA throughput is measured with a multipath simulator on commercial phones, in different planes. For each test object and orientation, a number of measurements are performed with the only difference being a redistribution of the delay taps over angle. The throughput variations seen show the sensitivity to delay tap distribution over angle on real phones, and indicate the importance of using several delay distributions over angle for correct characterization of phones.				
TD(11)01005	Reference antennas proposal for MIMO OTA	Istvan Szini, ETSI	WG1 – Radio Channel	Reference antennas MIMO OTA
During the first CTIA MIMO OTA Sub-Group (MOSG) meeting; occurred in March 2011 Orlando Florida ; it was suggested that to expedite the baseline between laboratories participants of CTIA LTE round robin, a set of MIMO 2x2 reference antennas should be developed. These antennas should be used strictly to baseline MIMO OTA throughput measurements, ruling out the antenna performance among diverse DUTs. Knowing the radiated performance or these reference MIMO 2x2 antennas, plus the conducted performance or each DUT, it' possible to somewhat predict the order of magnitude of each DUT data throughput, therefore later comparing with the DUT stand-alone radiated throughput. The main goal of these reference antennas is baseline round robin measurements results in the initial phase of measurements.				
TD(11)01006	Simplified SCME MIMO OTA test Method	Istvan Szini, ETSI		Simplified SCME MIMO OTA Method
It is theorized that a highly reduced number of subpaths per probe can be used and still retain sufficient accuracy to the original SCME model so as to be useful for OTA throughput measurements. This paper will describe the first steps taken to simplify the SCME model subpaths and then to evaluate the re-sultant uncertainty that is generated solely from this simplification.				
TD(11)01007	Optimized Beam-Forming and Achievable Rates of Network Coded Modulation with HDF Strategy in 2-Source 2-Relay Network	Jan Sykora, Czech Technical University in Prague	WG2 – Radio Signalling	
The paper address the Network Coded Modulation (NCM) with Hierarchical Decode and Forward (HDF) strategy in the 2-source 2-relay scenario with SIMO fading channels. The NCM/HDF technique is known to be vulnerable to the mutual phase rotations of the signals from the sources. We use additional degrees of freedom in SIMO channels and create a specific receiver beam-forming tailored for given NCM/HDF strategy. We derive a closed form solution of the NCM/HDF specific beamformer and apply it on example NCMs. We evaluate the performance in terms of the mean and the outage hierarchical rates. It is shown that these rates significantly benefit from the beamforming and that the resulting rate significantly outperforms classical (non WNC) channel sharing techniques.				
TD(11)01008	In-Body Channel Modeling	Kamya Yekeh Yazdandoost, National Institute of Information and Communications Technology	WG1 – Radio Channel	Medical Implant, SAR, Channel Modeling

Patient cares and diagnosis day by day and more and more is connected with and dependent upon concepts and advances of electronics and electromagnetics. The number of available electronic implantable devices is increasing every year. The complexity and functionality of these devices is also increasing at a significant rate. Transmitting and receiving data from/to inside the body from tissue implanted medical devices are of great interest for wireless medical applications due to the promising of different clinical usage to promote a patient healthcare and comfort from one side and the most effective treatment for medical conditions from other side. Propagation model plays a very important role in designing wireless communication systems. Therefore, a reliable and efficient communication link is necessary to guarantee the best connection from/to an implanted device. In this paper we provide a theoretical investigation to study the radio channel for body implanted device over Medical Implant Communications Service (MICS) band in the frequency range of 402-405 MHz.				
TD(11)01009	Bandwidth Re-allocation Depending on Large-Scale Path-Loss for Two Users in Partial Frequency Reuse Cellular Networks	Bujar Krasniqi, Vienna University of Technology Christian Mehlführer, Vienna University of Technology	WG3 – Radio Networks	Resource Management, OFDMA, Interference Mitigation
In this paper we apply constrained optimization techniques to optimally allocate bandwidth and transmit power to the users in a cellular network. We utilize partial frequency reuse as inter-cell interference mitigation technique considering two users uniformly located in full and partial frequency reuse regions. Bandwidth and power are allocated to the users based on their large-scale path-loss attenuation. Moreover, an efficient algorithm is used to solve the problem of power assignment for fixed bandwidth allocation when one user is in the full reuse region and one in the partial reuse region. We further demonstrate by simulations that allocation of the bandwidth and power to the users depending on the threshold for large-scale path-loss attenuation, results in a significantly increased sum-rate.				
TD(11)01010	Particle Filtering for UWB radar applications	Thanawat Thiasiriphet, Institute of Information Technology, University of Ulm, Germany	WG2 – Radio Signalling	IR-UWB, Particle filtering, UWB radar, Vital sign detection
UWB has been well-known to be useful for localization and radar applications. The use of UWB signals can provide distance measurements with high accuracy, but a big challenge is caused by high attenuation and low signal-to-noise ratios as well as by stationary cluttering. The situation gets worse if a moving object must be tracked as is given in vital sign detection, a problem which is the background for this contribution. We propose an algorithm based on particle filtering for coping with				
TD(11)01011	Analog Iterative Decoding based on recurrent neural nettworks	Mohamad Mostafa, Institute of Information Technology, Ulm, Germany Werner G. Teich, Institute of Information Technology, Ulm, Germany Jürgen Lindner, Institute of Information Technology, Ulm, Germany		Iterative threshold decoding, high-order recurrent neural networks, analog signal processing.

Artificial neural networks (ANN) are known for their ability to solve classification and optimization tasks and have been applied in many fields of communications such as equalization and multiuser detection, among others. In this paper an analog realization of iterative threshold decoding for binary linear codes is presented. It is shown that the iterative threshold decoding algorithm matches well with the structure of a continuous high-order recurrent neural network. The performance of the analog realization has been evaluated by simulation and is compared with the corresponding digital realization. The motivation of this work is that analog decoding improves the power/speed ratio and minimizes the area consumption on the very large scale integration (VLSI) chip.				
TD(11)01012	Traffic Steering Techniques in Enterprise LTE femtocells	José María Ruiz Avilés, University of Málaga Salvador Luna-Ramírez, University of Málaga Matías Toril, University of Málaga Fernando Ruiz, University of Málaga Isabel de la Bandera Cascales, University of Málaga Pablo Muñoz-Luengo, University of Málaga	WG3 – Radio Networks	Mobile network, traffic, enterprise LTE femtocells, load balancing, optimization, handover margins.
In cellular networks, traffic demand is unevenly distributed both in time and space. This paper investigates the problem of re-distributing traffic demand between LTE femtocells in an enterprise scenario. A performance comparison of several traffic sharing techniques is carried out based on simulations. For this purpose, an efficient dynamic system-level LTE simulator is built. Results show that the combination of directed retry and load sharing by tuning handover margins and transmit power is an effective means to solve localized congestion problems.				
TD(11)01013	Towards the COST IC 1004 Channel Model ?	Claude Oestges, UCL Katsuyuki Haneda, Aalto Univ Veli-Matti Kolmonen, Aalto Univ Lingfeng Liu, UCL Nicolai Czink, FTW Pertti Vainikainen, Aalto Univ Fredrik Tufvesson, Lund Univ François Quitin, ULB Philippe De Doncker, ULB	WG1 – Radio Channel	forum, channel model
This forum TD adresses ideas that could be of interest to define the COST IC 1004 channel model. The existing COST 2100 model will be reviewed, and new challenges will be identified.				
TD(11)01014	Indoor UWB Channel Analysis in an Atrium-Style Office Building for Multipath-Aided Localization	Paul Meissner, Graz University of Technology Daniel Arnitz, Graz University of Technology Thomas Gigl, Graz University of Technology Klaus Witrisal, Graz University of Technology	WG1 – Radio Channel	Multipath-Extraction; UWB propagation channels; channel modeling; virtual anchors; channel measurements; Multipath cancellation

We present a detailed analysis of an indoor UWB channel measurement campaign. The focus is on the modeling of the deterministic part of the multipath channel using a-priori known relevant reflections and scatterers, found from an available floor plan. Our approach uses virtual signal sources, whose locations and visibilities can be calculated using simple ray-launching techniques. The channel analysis steps exploit these results, using an effective multipath cancellation method that introduces virtually no artifacts. We show that the corresponding multipath-components can explain up to 90% of the UWB channel impulse responses in terms of energy capture. This is important for multipath-aided indoor localization, which provides robust position fixes using a single base station only.				
TD(11)01015	Design of a 60GHz Channel Sounder and Initial Measurements	Maria-Teresa Martinez-Ingles, UPCT Jorge Angosto-Tebas, UPCT Concepcion García-Pardo, UPCT Juan Pascual-Garcia, UPCT José-Víctor Rodríguez, UPCT J-M Molina-Garcia-Pardo, UPCT Leandro Juan-Llácer, UPCT	WG1 – Radio Channel	60 GHz, propagation, Channel Sounder
This TD presents the initial results of a National Project (TEC2010-20841-C04-03) where propagation is studied at 60GHz. From the acquisition of a VNA that is able to work up to 110GHz, the design of a channel sounder is studied. The difficulties of working at 60GHz are highlighted. Finally, LoS and OLoS measurements are presented				
TD(11)01016	Multi-Objective Optimization of MIMO Antennas for Dual-Band User Devices	Anders Derneryd, Ericsson AB Anders Stjernman, Ericsson AB Håkan Strandberg, EnginSoft Nordic AB Bo Wästberg, Efield AB	WG1 – Radio Channel	antenna, efficiency, correlation, multi-objective optimization, Pareto front, multi-criteria decision making
This paper presents the use of multi-objective optimization when designing a dual-antenna system for MIMO application. As a study case, a user device is selected operating within two separate frequency bands, namely 750-800 MHz and 2.5-2.7 GHz. The MIMO performance of such an antenna system depends strongly on the antenna efficiency in a noise-limited environment but also on the correlation between the antenna branch signals. The antennas also share space with other components in a user device, which puts restrictions on the occupied area. This leads to conflicting requirements that are handled with a multi-objective optimization procedure.				
TD(11)01017	Challenges in Body Area Networks	Arie Reichman, Ruppin Academic Center	WG2 – Radio Signalling	Body Area Networks, cooperative communications,crosslayer design
The intensive activity in the communications community in the last years in Body Area Networks (BAN)lead to significant achievements in research and standartisation . However there are still challenges in order to farther improve the reliability of the network by better understanding of the channel, cooperative communication in crosslayer design.				
TD(11)01018	Dependency of the Power and Delay Domain Parameters on Antenna Height and Distance in Urban Macro Cell	Annika Böttcher, RWTH Aachen University Christian Schneider, Ilmenau University of Technology Peter Vary, RWTH Aachen University	WG1 – Radio Channel	large scale parameter, measurement data, channel sounding, spatial channel modeling

		Reiner S. Thomä, Ilmenau University of Technology		
Large scale parameters (LSP) mainly describe the distribution of the transmitted power over different dimensions of the channel. The required statistic is obtained from MIMO channel measurements with an appropriate post processing procedure. In this contribution, we perform the characterization of large scale parameters within an urban macro cell scenario. We focus on investigating the influence of the base station antenna height and the distance between the mobile terminal and the base station. The parameter analysis is conform to the 3GPP SCM and WINNER channel models. We found that parameters as delay spread, K-factor and cross polarization ratio show significant dependency. Because of their potential impact on the system performance these results should be considered and validated in current and future channel models.				
TD(11)01019	Research on Relay Green Communications from Relay Prospective	Tian Lei, Beijing University of Posts and Telecommunications Jianhua Zhang, Beijing University of Posts and Telecommunications		Green Communications, Relay
As climate and enviroement pollution problems become more and more severe today, "Green" in various industries are widely concentrated. In Information and Communication Technologies (ICT)industry, Relay should be a potential technology for energy saving. This TD firstly predicts the energy consumption in ICT industry in the next ten years. Then our recent research on relay green conmmunications are simply presented. Asymptotic energy efficiency analysis for relay is carried out at high SNR regime to facillitate the energy effficiency comparison. The analysis can aid the design of relay networks and serve as a benchmark for further studies.				
TD(11)01020	Influence of Panorama Glass Roofs on Car2Car Communication	Kwoczek, andreas, Volkswagen AG	WG1 – Radio Channel	Car2Car, antenna, glass roof,
Car2Car communication will use a reserved frequency band at 5.9 GHz. One of the key requirements for a car2car antenna is that the gain is concentrated in the horizontal plane which is a problem due to the limited ground plane of a car roof. Three different antennas were simulated and measured on round ground planes and real car roofs in different configurations. The configuration with a panorama glass roof showed a loss of gain in the direction of the glass roof in the range of 10 to 15 dB which result in a drastically reduced communication range in the front direction.				
TD(11)01021	Modelling the Influence of Body Dynamics on the Radiation Pattern of Wearable Antennas in Off-Body Radio Channels	Michal Mackowiak, IST	WG1 – Radio Channel	Body Area Networks, Body Movement, Antennas, Radiation Pattern
The goal of this paper is to address a statistical approach for modelling body dynamics on the radio link performance in Body Area Networks, particularly in off-body radio channels. A dynamic model was developed based on Motion Capture data, describing a realistic human body movement. Antennas were located in 4~typical positions (i.e., Head, Chest, Arm and Leg), for which statistics of main radiation direction (i.e., average and standard deviation of elevation and azimuth angles) were calculated for 2~dynamic scenarios, i.e., Walk and Run. Based on the rotation of antenna, the statistics of radiation pattern of a wearable patch antenna operating at 2.45~GHz were calculated. The standard deviation of the change in the main radiation direction is the highest for the Arm location, reaching 19° and 36° for the Run scenario, for elevation and azimuth angles, respectively. For all antenna positions and the Walk scenario, the standard deviation is less than 4°.				
TD(11)01022	Throughput Comparison with the Same Set of Phones in Multipath Simulator and Reverberation Chamber	Juan Diego Sánchez-Heredia, Technical University of Cartagena (UPCT)		Multipath simulator, Reverberation chamber, Throughput.

		Paul Hallbjörner, SP Technical Research Institute of Sweden Thomas Bolin, Sony Ericsson Mobile Communications AB		
Over-the-air tests are important in the development process of wireless devices. The goal of these tests is to quantify the communication performance of phones in real case scenarios. Two types of equipment that can be used for such tests are the multipath simulator and the reverberation chamber. In this paper, we present measurements of HSDPA throughput on three commercial phones, using these two techniques. The purpose is to see whether differences between the phones are independent of the used technique.				
TD(11)01023	New laboratory for Over-The-Air testing and Wave Field Synthesis	Wim Kotterman, TU Ilmenau, D Markus Landmann, Fraunhofer IIS,D Albert Heuberger, TU Ilmenau, D Reiner Thomä, TU Ilmenau, D	WG1 – Radio Channel	OTA, MIMO, Wavefield synthesis, testbed, satellite mobile, terrestrial mobile
At TU Ilmenau, a new laboratory is under construction for testing mobile communication equipment, both satellite and terrestrial.This contribution focuses on Over-The-Air testing of terrestrial mobile terminals and on applications of Wave Field Synthesis in this laboratory. The terrestrial research in the lab will mainly serve scienti□fic purposes, as research into OTA test methodologies, also meant to actively engage in standardisation of OTA practices. Research into Wave Field Synthesis is another. A clear application is to study real-time antenna characteristics of mobile terminals in an OTA setting. With the projected equipment, a state-of-the-art OTA installation will become available.				
TD(11)01024	Optimal Transmission for the MIMO Bidirectional Broadcast Channel in the Wideband Regime	Tan Tai Do, Royal Institute of Technology Tobias Oechtering, Royal Institute of Technology Mikael Skoglund, Royal Institute of Technology	WG2 – Radio Signalling	bidirectional relaying, minimum energy per bit, wideband capacity, optimal transmit strategies, fairness
This paper discusses an optimal transmit strategy for multiple antennas bidirectional broadcast channels in the wideband regime. The transmit covariance matrix at the relay has been designed in order to maximize the wideband weighted sum rate. A closed form of the optimal matrix is derived, which shows that a single beam transmit strategy is optimal. The transmit strategies for some special cases, the wideband capacity region, and the minimum energy per bit versus fairness issues are also discussed.				
TD(11)01025	Multiplexing Efficiency of Multiple Antenna Systems	Ruiyuan Tian, Dept. of Electrical and Information Technology, Lund University Buon Kiong Lau, Dept. of Electrical and Information Technology, Lund University Zhinong Ying, Sony Ericsson Mobile Communications AB		MIMO, antenna, multiplexing
Multiplexing efficiency is proposed as a simple and intuitive metric for characterizing multiple antenna systems in the spatial multiplexing mode of operation. Instead of comparing channel capacities of MIMO systems with different antennas, the metric offers valuable insights into the impact of antenna efficiency, efficiency imbalance and correlation on multiplexing performance. It is particularly useful in antenna design with the goal to achieve the optimum MIMO system performance. Experimental results involving mobile terminal prototypes highlight the effectiveness of the proposal.				

TD(11)01026	Examples of Uncorrelated Antenna Radiation Patterns for MIMO Systems	Andrés Alayon Glazunov, KTH Royal Institute of Technology Jie Zhang, University of Sheffield	WG1 – Radio Channel	antenna radiation pattern, MIMO, spherical vector waves
In this paper we provide some examples of an approach resulting in uncorrelated antenna radiation patterns at both ends of a MIMO (Multiple-Input Multiple-Output) wireless link in a given propagation channel. The patterns of antennas exciting dipole or dipole and quadrupole TE and TM modes are analyzed for two generic MIMO channel models based on the Kronecker correlation model with Laplacian angle-of-arrival (AoA) and angle-of-departure (AoD) distributions. The presented results are of a fundamental nature and essential to achieve the promise of MIMO systems.				
TD(11)01027	Antennas and Propagation for the Ear-to-Ear Communication Channel for Binaural Hearing Aids	Rohit Chandra, Lund University Anders J Johansson, Lund University	WG1 – Radio Channel	Ear-to-Ear Channel, Heterogeneous Phantom, Homogenous Phantom, Binaural hearing aids, antenna
We have investigated the possibility of using the 2.45 GHz ISM band for communication between binaural hearing aids. Two different types of hearing aid placements have been investigated: in the outer ear and in the ear canal. Both put strict demands on the size of the antenna, which have been miniaturized by applying disc loads and high permittivity materials. The preliminary investigations have been done by FDTD simulation of a modified SAM phantom head, where we have included a simple model of the ear canal. Simulations show that the outer ear placement is better, as it gives a total link loss of 48 dB. The placement in the ear canal gives a total link loss of 92 dB. Since the preliminary investigation indicated that the loss in the outer ear placement is low enough to support low power communication at 2.45GHz, this configuration was chosen for further investigation on realistic heterogeneous human phantoms with proper electrical properties of all the tissues in the head. It was found that the antenna detunes differently for the different realistic phantoms and different ears within the same phantom. It was also found that the ear-to-ear link loss was 30 dB higher in a realistic heterogeneous phantom (named Duke of a 34 year old male) than in the SAM phantom. This was mainly due to the presence of an outer lossy layer (skin) and the outer ears (pinna) in Duke phantom. With this it can be concluded that for accurate on-body propagation measurements, the phantom must have				
TD(11)01028	Update from CTIA of technical activity in MIMO OTA SubGroup (MOSG)	Paul Moller, Motorola Mobility Ron Borsato, Spirent Communications Scott Prather, AT&T	WG1 – Radio Channel	CTIA MIMO OTA MOSG
The CTIA – The Wireless Association™ ERP Working Group finalized its OTA Test Plan v3.1 as of Jan 11, 2011. With this work completed, the CTIA ERP workgroup turned its focus to MIMO OTA measurement. Subsequently, the CTIA ERP Working Group has formed a new subgroup whose mission is to apply additional resources to MIMO OTA test method development, with a 2x2 MIMO OTA test plan as the work output. In addition, the CTIA ERP Workgroup has taken on the task of developing a standardized methodology for the measurement of TRP and TIS for LTE devices. This paper will provide an				
TD(11)01029	MIMO LTE Round Robin: Results, Accuracy and Repeatability	Christian Lötbäck Patané, Bluetest Magnus Franzén, Bluetest	WG2 – Radio Signalling	Accuracy, LTE, MIMO, Reverberation chamber, Round Robin, Throughput, OTA
This contribution presents result from the ongoing Round Robin LTE MIMO measurement campaign, initiated by the 3GPP RAN4 sub-working group MIMO OTA. The measurements have been performed in Bluetest reverberation chambers, using the setup described in the test plan. Measurement results for six different units of USB connected dongles are presented. The results show that it is possible to separate between DUTs with different performance by measuring the MAC layer throughput and by using the channel model offered by the reverberation chamber. Measurement with the more complex SCME channel models are also presented. The OTA results are compared to conductive measurements, which makes it possible to analyze receiver and antenna performance separately. In addition, this contribution will analyze the				
TD(11)01030	MIMO LTE Round Robin: Analysis	Christian Lötbäck Patané, Bluetest Magnus Franzén, Bluetest		LTE, Measurement uncertainty, MIMO, Reverberation chamber, Round Robin, Throughput, OTA

3GPP RAN4 sub-working group MIMO OTA has initiated a Round Robin measurement campaign with purpose of evaluating different measurement methodologies, with capability of measuring the LTE MIMO performance of wireless devices. A number of USB connected dongles of different brands and models are provided to different labs. This contribution aims to show the uncertainties associated with this approach of evaluating different methodologies. The uncertainties are partly due to DUT instability, partly due to instability of the measurement setup. For example, the host computer noise will significantly degrade the performance of the dongle and the performance will depend on the host computer used. Also, the position of the dongle relative to the host computer will affect the performance of the dongle. In addition, the measured performance will also depend on the eNodeB emulator used.				
TD(11)01031	Challenging Vehicular Scenarios for Self-Organizing Time Division Multiple Access	Arrate Alonso, Technische Universität Wien Katrin Sjöberg, Centre for Research on Embedded Systems, Halmstad University Elisabeth Uhlemann, Centre for Research on Embedded Systems, Halmstad University Erik Ström, Department of Signals and Systems, Chalmers University of Techn. Christoph Mecklenbräuker, Technische Universität Wien	WG3 – Radio Networks	New vehicular scenarios, safety-related applications, IEEE802.11p MAC Layer, STDMA
IEEE802.11p and the european profile standard ITS-G5A define enhancements to the Physical layer (PHY) and Medium Access Control (MAC) for the support of Intelligent Transport Systems (ITS). This includes communication links between vehicles as well as between vehicles and a roadside infrastructure. The current MAC method uses randomized backoff in the case of access collisions which induces unpredictable communication delays. It is known that such unpredictable delays severely limit the value of safety-related services. The most effective way forward is to design a protocol that suits vehicular traffic and safety-related service constraints. Self-Organizing Time Division Multiple Access (STDMA) is a suitable alternative, due to its structured channel access, predictable delay and periodic character. In this article we outline new scenarios for STDMA, which will be the foundation for further simulations and analysis of STDMA.				
TD(11)01032	About using an antenna array in the reader for an UWB tag with On-Chip Antenna	Nikola M. Gvozdenovic, VUT Philipp K. Gentner, VUT Christoph F. Mecklenbräuker , VUT	WG1 – Radio Channel	UWB, On-Chip Antenna, Antenna Array
In this paper, we propose an antenna array for the reader of an ultra-wideband radio frequency identification tag (UWB RFID). The manufactured UWB RFID prototype with a size of 1x1.3 mm^2 which features an on--chip antenna (OCA), transmits UWB pulses modulated with on-off keying (OOK). Utilization of an antenna array at the reader yields gain and offers possibility for rough positioning of the tiny tag. We analyze and discuss the design of the UWB RFID tag, and our proposed design for a multi-antenna reader. Finally, we report on our measurement.				
TD(11)01033	Initial Investigation to Study the Effect of Antenna Placement in Vehicle-to-Vehicle Communications	Taimoor Abbas, EIT, Lund Johan Karedal, EIT, Lund University Fredrik Tufvesson, EIT, Lund University	WG1 – Radio Channel	V2V Communications, Vehicle-to-Vehicle Antennas, Channel Modelling, Vehicle-to-Vehicle Measurements

In this paper we present effects of antenna placement in Vehicle-to-Vehicle communications based on measurements performed in three different propagation scenarios; highway, urban and rural. Four omni-directional antennas were mounted at four different positions, i.e., roof, bumper, inside windscreen and left-side mirror, of each transmitter (TX) and receiver (RX) cars. The channel transfer functions were measured for all antenna combinations. The results from this initial analysis show that the antennas mounted at roof and on the left-side mirror performe better when vehicles are moving in convoy. Whereas, if the TX and RX are moving in opposite direction, i.e., towards each other, bumper antenna outperforms other antennas as long as vehicles do not cross each other.				
TD(11)01034	Energy efficiency maximization by power control and packet length adaptation under resource constraints in wireless (sensor) networks	Goran Dimić, Institute Mihajlo Pupin, Univ. of Belgrade, Serbia Nikola Zogović, Institute Mihajlo Pupin, Univ. of Belgrade, Serbia Dragana Bajić, Faculty of Technical Sciences, Univ. of Novi Sad, Serbia	WG2 – Radio Signalling	transceiver electronics, transmitter energy consumption, transmitter power control, channel attenuation model, variable packet length, packet aggregation, energy efficiency regions
Energy efficiency of radio communications is a key metric in green smart environments (GSEs). It is typically given as the number of successfully transmitted bits per unit of energy (Joule). In this TD, results on energy efficiency maximization over a single-hop link with retransmissions, assuming maximum and minimum transmit power constraints are presented. Energy consumption of electronics is accounted for. In radio signal power budget, total channel attenuation is used instead of distance-dependent signal attenuation. The optimal pair of transmit power and packet length, which maximizes energy efficiency, is evaluated. In addition, the region of transmit power and packet length, which yields suboptimal energy efficiency is evaluated. The region has significant size, which enables various other trade-offs in cooperative radio communications for GSEs. Based on these results, we suggest further scientific and technical challenges: we will focus on finding accurate total transmitter power and energy consumption models, and build upon them to assess energy efficiency of various cooperative radio transmissions.				
TD(11)01035	Silicon prototype of an bandwidth reconfigurable UWB RFID tag with on-chip antenna	Philipp Gentner, VUT Martin Wiessflecker, Infineon Guenter Hofer, Infineon Christoph Mecklenbraeuker, *VUT*	WG1 – Radio Channel	UWB RFID tag, On Chip Antenna,UWB, OCA antenna design and characterisation
Inexpensive and power efficient transmitters are essential in tiny RFID tags. Increasing the data rate while reducing the power consumption is possible by using UWB Impulse Radio as communication scheme. Moving the complexity to a reader station in a RFID scenario where computational power is available is an accepted compromise. In this paper we show simulations and measurements of our active bandwidth reconfigurable UWB RFID tag with on-chip antenna. The tiny grain with a size of 1x1.3$\,$mm^{2} is manufactured in a standard CMOS process and is suitable for very low power applications.				
TD(11)01036	Comparison of Path Loss Measurements and Predictions at Urban Crossroads for C2C Communications	Moritz Schack, TUBS Jörg Nuckelt, TUBS Robert Geise, TUBS Lena Thiele, TUBS Thomas Kürner, TUBS	WG1 – Radio Channel	Car-to-Car communication, channel modeling, channel measurements, urban crossroads
The signal-to-noise ratio (SNR) available at the receiver significantly affects the performance of Car-to-Car (C2C) communication systems. Thus, accurate models to predict the path loss, in particular for non-line-of-sight (NLOS) scenarios, are essential for the development of C2C systems. Since deterministic models are very time-consuming, also fastcomputable stochastic models are of great interest. This paper focuses on the radio propagation for C2C communications at urban crossroads under NLOS conditions. 3D ray-optical path loss predictions are compared with narrow-band measurements at 5.9 GHz. Furthermore, a stochastic propagation model that can be used to estimate maximum communication distances for different data rates is derived.				
TD(11)01037	Protocol-assisted channel decoding	Hu, Ruijing, L2S - CNRS - Supelec - Univ Paris-Sud	WG2 – Radio	Convolutional decoding, Joint decoding, MAC Frame, Robustness

		Kieffer, Michel, L2S - CNRS - Supelec - Univ Paris-Sud Duhamel, Pierre, L2S - CNRS - Supelec - Univ Paris-Sud	Signalling	
This paper describes how the channel decoder at PHY layer of a communication system can benefit from information brought either by careful examination of the standard, or by already received packets. Known bits in headers of upper layers of the protocol stack are used as pilot bits in the channel decoder. These bits may provide noticeable gains in terms of frame error rate. The method is simulated on a 802.11a radio interface using BPSK modulation over AWGN channel. The performance on robust recovery of PHY and MAC headers shows a substantial link budget improvement without modifying the standard, while introducing an additional interleaver also allows a significant improvement in terms of frame error rate.				
TD(11)01038	Approaches for evaluating the application performance of future mobile networks	Thomas Werthmann, Universitaet Stuttgart, IKR Matthias Kaschub, Universitaet Stuttgart, IKR Christian Blankenhorn, Universitaet Stuttgart, IKR Christian M. Mueller, Universitaet Stuttgart, IKR	WG3 – Radio Networks	application performance, transport protocols, system level simulation
In order to achieve high data rates, future mobile networks employ complex algorithms in the physical and mac layers. Previous studies have shown relevant interactions between these algorithms and transport and application layer mechanisms. An efficient design of lower layers requires consideration of higher layers, given that the service quality experienced by the user is the ultimately relevant performance metric. In our presentation, we give an overview of approaches that allow for the joint evaluation of mac, transport, and application layer mechanisms. We then focus on the integration of virtual machines into our system level simulation tool. This approach enables us to evaluate the application performance even if the entire setup was too slow to run in real-time. With this approach, evaluating the application performance can be done by both deriving objective performance metrics and playing back traces (e.g. video) later on.				
TD(11)01039	Help4Mood: A Computational Distributed System to Support the Treatment of Patients with Major Depression	David Perez Diaz de Cerio, UPC José Luis Valenzuela, UPC Silvia Ruiz, UPC Josep M. Colomé, i2CAT	WG3 – Radio Networks	Wireless Personal Monitoring, Wireless Sensors, Virtual Agent
A closed loop approach supporting the control, communication and treatment management of patients with Major Depression is presented, based on a distributed system with three main components: a Personal Monitoring system, a Virtual Agent component and the Decision Support System for Treatment Management.				
TD(11)01040	UL system and link level simulation of 3GPP-LTE Rel.8	María Angel Lema, UPC Mario García-Lozano, UPC Joan Olmos, UPC Silvia Ruiz, UPC	WG3 – Radio Networks	

Abstract--- 3GPP LTE is the evolution of UMTS which will make possible to deliver next generation high quality multimedia services according to the users' expectations . In LTE, Single Carrier Frequency Division Multiple Access (SC-FDMA) transmission mode was selected for the uplink (UL) communication due to its low PAPR. The main RRM functionalities developed in the LTE UL are fast Link Adaptation (LA) including Adaptative Modulation and Coding (AMC), Fractional Power Control (FPC), Hybric Automatic Repreat ReQuest (HARQ) and Packet Scheduler (PS) among others. This paper presents the development and validation of a system level simulator that includes most of these functionalities with the main purpose of developing a simulation tool for further research.				
TD(11)01041	Correlation-based Radio Localization in an Indoor Environment	Thomas Callaghan, Rice University Nicolai Czink, FTW Francesco Mani, UCL Arogyaswami Paulraj, Stanford University George Papanicolaou, Stanford University	WG2 – Radio Signalling	indoor localization; experiments; ray-tracing;
We investigate the feasibility of using correlation-based methods for estimating the spatial location of distributed receiving nodes in an indoor environment. Our algorithms do not assume any knowledge regarding the transmitter locations or the transmitted signal, but do assume that there are ambient signal sources whose location and properties are, however, not known. The motivation for this kind of node localization is to avoid interaction between nodes. It is most useful in non-line-of-sight propagation environments, where there is a lot of scattering. Correlation-based node localization is able to exploit an abundance of bandwidth of ambient signals, as well as the features of the scattering environment. The key idea is to compute pairwise cross correlations of the signals received at the nodes and use them to estimate the travel time between these nodes. By doing this for all pairs of receivers we can construct an approximate map of their location using multidimensional scaling methods. We test this localization algorithm in a cubicle-style office environment based on both ray-tracing simulations, and measurement data from a radio measurement campaign using the Stanford broadband channel sounder. Contrary to what is seen in other applications of cross-correlation methods, the strongly scattering nature of the indoor environment complicates distance estimation. However, using statistical methods, the rich multipath environment can be turned partially into a				
TD(11)01042	Impact of various channel models on LTE mobile terminal performance in MIMO OTA test environment	Pekka Kyösti, Elektrobit Lassi Hentilä, Elektrobit Miia Nurkkala, Nokia Jani Kallankari, Nokia	WG1 – Radio Channel	MIMO OTA, radio channel model, radiated testing, LTE, antenna measurement
This TD comprises a comparison of throughput performance measurements with a LTE mobile terminal applying anechoic chamber and fading emulator based MIMO OTA (Over-the-Air) method. The comparison is between different channel models. Performance with both 2D and 3D models with single polarized and dual polarized configurations is evaluated. Propagation models in measurements are a selection of IMT-Advanced, WINNER and SCME scenarios, different single cluster scenarios, and sequences of dynamic (non-stationary) channel models. The measurement results indicate that the channel model impacts on throughput performance.				
TD(11)01043	Future views on propagation channel modeling for mobile communications	Pertti Vainikainen, Aalto Katsuyuki Haneda, Aalto University Veli-Matti Kolmonen, Aalto University	WG1 – Radio Channel	radiowave propagation mobile communications propagation modeling propagation phenomena

This document discusses the possible ways forward in propagation channel modeling. Currently lots of work with different methods such as measurements, ray tracing, etc. has been done to identify and characterize the most important propagation phenomena in mobile communications. However, there are significant aspects still missing or having only limited information in the data. These are e.g. frequency dependency, significance of scattering, and comprehensive coverage of different propagation environments. Another "eternal" aspect is of course the simplification of the channel models to meet the requirements of the users. One way to approach both the lacking information and the simplification is to improve the computational methods like ray-tracing based on measurements and limited full-wave simulations and use the computational tools to provide information at different frequencies and in different environments. From these results also the most significant propagation phenomena might be identified and included in the models.				
TD(11)01044	Test Plan for DL 2x2 MIMO OTA Testing – Part II: Test Plan Description and Examples	Christoph von Gagern, Rohde & Schwarz Adam Tankielun, Rohde & Schwarz Yifei Feng, RheinMain Univ. of Applied Sciences Werner Schroeder, RheinMain Univ. of Applied Sciences	WG2 – Radio Signalling	Antenna Measurements, MIMO Systems, RF System Aspects
In Part II the detailed test plan description is presented. The steps for obtaining the measurement results for downlink 2x2 MIMO OTA devices are laid out, the data analysis and possible verdict criteria as well as some examples of such measurements are given.				
TD(11)01045	Test Plan for DL 2×2 MIMO OTA Testing - Part I: straightforward characterization measurements and statistical metrics	Yifei Feng, RheinMain University of Applied Sciences Christoph von Gagern, Rohde & Schwarz GmbH Adam Tankielun, Rohde & Schwarz GmbH Werner L. Schroeder, RheinMain University of Applied Sciences	WG2 – Radio Signalling	MIMO Systems, OTA Measurements, Antenna Measurements
Based on the participation of two phases of COST2100 MIMO OTA round robin campaign, a test plan for downlink 2x2 MIMO OTA devices is presented. In Part I the theoretical arguments and general description is given for simple and straight-forward measurements with corresponding statistical metrics.				
TD(11)01046	Report on Test Results from the RAN4 Round Robin Test on LTE MIMO Devices	Christoph von Gagern, Rohde & Schwarz Adam Tankielun, Rohde & Schwarz		Antenna Measurements, MIMO Systems, RF System Aspects
In the past months a round robin test with LTE USB modems was performed at 3GPP RAN4. This paper describes results obtained with the two-channel method. Analysis of the data could be made according to various criteria giving a good insight to the feasibiity of discriminating good and not-so-good devices.				
TD(11)01047	Linear precoding performance in measured very-large MIMO channels	Xiang Gao, Lund University Ove Edfors, Lund University Fredrik Rusek, Lund University Fredrik Tufvesson, Lund University	WG2 – Radio Signalling	very-large MIMO, linear precoding, MIMO capacity

Very-large MIMO is a new research field in wireless communications. We consider multi-user MIMO systems in which the base stations are equipped with a large number of antennas. As the dimension increases, from random matrix theory the propagation properties that were random before start to be deterministic. In particular, the channels from separated users to the base station tend to be orthogonal. Channel measurements with 128-antena base station were done in a residential area. By studying the measured channels, we find that the user channels can be de-correlated as the number of base station antennas goes large. Thus in the downlink of the very-large MIMO, the sum rates achieved by the linear precoding schemes such as ZF and MMSE approach the optimal capacity by the highly complex DPC technique. This shows that the very-large MIMO permits the simplest sort of precoding while the optimal capacity is obtained.				
TD(11)01048	Optical Measurements On Small Terminal Antennas	Boyan Yanakiev, Molex / Aalborg University Jesper Nielsen, Aalborg University Gert F. Pedersen, Aalborg University Morten Christensen, Molex	WG2 – Radio Signalling	optical fiber, propagation measurements, optical fiber measurement applications, antenna, MIMO systems, electrically small antennas, handset antennas
In this paper details are given on a novel measurement device for radio propagation channel measurements. To avoid measurement errors due to the conductive cables on small terminal antennas, as well as to improve the handling of the prototypes under investigation, an optical measurement device has been developed, utilizing thin, light and flexible glass fiber as opposed to a heavy, stiff and conductive coaxial cable. The paper looks at the various system parameters such as overall gain, noise figure and dynamic range and compares the solution to other methods. An estimate of the device accuracy is also given. Selected parts of the circuitry are analyzed in more details, for different application.				
TD(11)01049	Linear Diversity Combining Techniques Employed in Car-to-X Communication Systems	Joerg Nuckelt, TU Braunschweig Hendrik Hoffmann, TU Braunschweig Moritz Schack, TU Braunschweig Thomas Kuerner, TU Braunschweig		IEEE 802.11p Diversity combining PHY layer performance
This paper presents performance evaluation results of different linear diversity combining techniques that have been applied to IEEE 802.11p based Car-to-X (C2X) communication systems. More precisely, we employed the Selection Combining (SC), the Equal Gain Combining (EGC) and the Maximum Ratio Combining (MRC) algorithms to systems with multiple receiver antennas and compared the resulting performance to that of single-receive antenna systems. Concerning the great challenges of typical C2X propagation channels that go along with a strong time variance and long multipath delays, the use of multiple receive antennas in combination with adequate signal combining algorithms can clearly improve the reliability of the communication system even under poor Signal-to-Noise Ratio (SNR) conditions. Based on physical				
TD(11)01050	Optimization Power in MMSE Precoding Downlink	Ana Santos Rodríguez, Ana García Armada,	WG3 – Radio	Network MIMO, Coordinated Multiple point transmission, MMSE
In a coordinated multiple point transmission scenario for the downlink, we propose a precoding scheme bases on a MMSE criterion to manage the inter-user interference. In order to allocated the transmitted power to each user\\\'s signal, we propouse a power optimization inside the MMSE precoding acording to the maximum power transmissión per base station. The performance is illustrated obtaining the achievable rates for different antenna configurations and different kinds of power constraint. A comparison with a MMSE precoding scheme using waterfilling optimization shows the adventage of the MMSE scheme proposed. We also include the comparation for differents SNR\\\'s.				
TD(11)01051	Statistical modelling of the power gain pattern of a random set of parameterized planar dipoles	Zeinab MHANNA, Télécom ParisTech Alain SIBILLE, Télécom ParisTech	WG1 – Radio Channel	Antenna signal processing, Antenna theory/modelling

A statistical model intended to describe the variability in the power gain patterns of a set of tag-like planar dipoles, randomly generated from a starting parameterized design, is described. The model is constructed in two steps, the first being a Fourier series expansion in both the azimuth and the elevation of the power gain pattern for each antenna (obtained from electromagnetic simulations), the second being the extraction of a statistical model of the expansion coefficients over the full set. The trade-off between the model complexity and its accuracy can be adjusted through the order of the Fourier expansion as well as the level of parameterization of the statistical model. The overall data compression rate approaches 10000, when comparing the total number of antenna gain values of the set to the final number of parameters of the statistical model.				
TD(11)01052	LTE MIMO OTA Round Robin Testing Results	alessandro scannavini, SATIMO Industries	WG2 – Radio Signalling	LTE, MIMO, OTA, 3GPP, COST2100
Results of the SATIMO/Elektrobit testing campaign are reported. Measurement campaign is part of the 3GPP/COST2100 MIMO OTA round robin testing. LTE MIMO capable DUTs have been measured by using single cluster and multiple cluster approaches. Comparison of DUTs' Throughput Vs Channel Power results when using different channel models has been highlighted. This paper has been previously presented to 3GPP RAN4.				
TD(11)01053	Quantise and forward relaying for coded physical layer network coding	Dong Fang, University of Alister Burr, University of York	WG2 – Radio Signalling	Network Coding Relaying Quantise and forward
The paper considers physical layer network coding as applied to the two-way relay channel with outer FEC coding. Instead of full decoding at the shared relay, soft-output detection of the network-coded information is performed, and the resulting LLRs are quantised and compressed and fowarded to both destination nodes, where full decoding is carried out. Several strategies at the relay appropriate to BPSK and QPSK modulation are considered.				
TD(11)01054	System level simulation for a MIMO hierarchical wireless network	Tao Jiang, University of York Agisilaos Papadogiannis, University of York Alister Burr, University of York	WG3 – Radio Networks	System-level simulation Wireless backhaul MIMO capacity
The paper considers system level simulation of a next generation broadband wireless access network using in-band wireless backhaul, which can be described as a hierarchical wireless network. In particular it considers simulation methods for MIMO links on the backhaul network.				
TD(11)01055	Channel Model Power Normalization	Doug Reed, Spirent Communications Hongwei Kong, Agilent Technologies		
The final abstract is under review and will be provided shortly. A draft is shared below. With normalization, the power presented to the device will be independent of the channel model and the reference level will represent the actual device performance for that channel. A constant unit power will be presented to the test volume, having a variety of spatial, temporal, correlation, XPR, and Polarization properties as defined by the given channel model. Thus the different channel models uniquely exercise these parameters, at a normalized power level. If normalization is not used, different power levels will be presented to the DuT for each channel model, and these power differences will not be properly accounted for in the reference level. The result will be shifts in the curves that are not appropriate.				
TD(11)01056	Preliminary Round Robin Measurement Results	Doug Reed, Spirent Communications Michael Foegelle, ETS-Lindgren		
ETS-Lindgren and Spirent Communications have taken a number of measurements of the pool 3 devices for the MIMO-OTA LTE Round Robin testing campaign being executed by 3GPP RAN4. Devices were measured using the anechoic chamber method and preliminary results for average throughput are reported in this paper. Additional analysis and reporting is planned.				

TD(11)01057	Frequency Characteristics of Elevational Variation in Radio Wave Propagation through Foliage	Chaymaly Phakasoum, Tokyo Institute of Technology Koshiro Kitao, NTT DOCOMO Inc Tetsuro Imai, NTT DOCOMO Inc	WG1 – Radio Channel	propagation through foliage
This TD presents the measured result of propagation loss due to the foliage with the elevational variation of base station height.				
TD(11)01058	Review of MIMO OTA progress and topics for future research	Moray Rumney, Agilent Technologies	WG2 – Radio Signalling	MIMO OTA
This paper will review progress towards MIMO OTA test solutions and identify areas requiring further research.				
TD(11)01059	Specific Attenuation Through a Tree Canopy: 3-D Vector Radiative Transport Approach	Saúl A. Torrico, Comsearch Roger H. Lang, The George Washington University	WG1 – Radio Channel	Specific Attenuation, trees, vegetation, propagation loss, radiative Transport
The objective of this paper is to compute the specific attenuation of a tree canopy using the 3-D vector radiative transport theory. As new generation of wireless communication systems are being proposed, a more precise prediction of the propagation loss between the transmitter and the receiver is required to improve the capacity of these systems. Most of these new communications systems are going to be operating in the 3.5 GHz to 5.5 GHz frequency range and are going to be located at the rooftop of the domestic houses where trees and houses may completely or partially block the first Fresnel zone. Therefore, it is of practical interest to find out the attenuation effects of trees/houses on the propagation loss in a vegetated residential area. The vegetated residential area is modeled by parallel rows of houses each with an adjacent tree canopy located above the row of houses. Even though extensive studies have been reported on the 3-D vector radiative transfer theory, very few studies have applied transport theory to calculate the intensity variation as a function of depth into the canopy. The canopy will be modeled as an infinite slab with an ensemble of branches having prescribed location and orientation statistics. The branches are modeled as finitely long, circular, lossy-dielectric cylinders.				
TD(11)01060	1) Experimental validation on handset antenna pattern measurement accuracy	Hongwei Kong, Agilent Ya Jing, Agilent Technologies		MIMO OTA, antenna pattern measurement
This paper investigates the accuracy with which a UE chipset can measure the received power and phase of each branch of the receiver. This capability can be used to calculate the antenna pattern for use in calculating MIMO figures or merit. Very good power linearity and pahse stabiity were observed.				
TD(11)01061	Propagation simulation for Body Area Networks by GMT	Takahiro Aoyagi, Tokyo Institute of Technology Jun-ichi Takada, Tokyo Institute of Technology	WG1 – Radio Channel	Body Area Network (BAN), Wave Propagation, Generalized Multipole Technique (GMT), Dynamic Channel, Electromagnetic Wave Simulation
Recently, body area networks (BAN) make great attention in wireless communications. It contains two challenging research themes; antenna de-embedding and temporary dynamic channel modeling. Our research group has proposed antenna de-embedding by using multipole expansion of antenna characteristics. In this report, we summarize our recent research results and discuss about perspective to antenna de-embedding and dynamic channel modeling for BANs.				
TD(11)01062	Preliminary LTE MIMO OTA test results using two-stage method	Hongwei Kong, Agilent Ya Jing, Agilent Technologies		
This paper provides preliminary results of MIMO antennas tests using the two-stage method of pattern measurement followed by conducted testing via the temporary antenna port.				

TD(11)01063	T-Shape Slot Induced Decoupling for Closely Spaced Dual PIFAs in MIMO Terminals	Shuai Zhang, Royal Institute of Technology and Lund University, Sweden Buon Kiong Lau, Lund University, Sweden Anders Sunesson, Lite-On Mobile Sweden AB, Sweden Sailing He, Royal Institute of Technology, Sweden;Zhejiang University, China	WG1 – Radio Channel	Antenna array mutual coupling, MIMO systems, parasitic antennas
In this paper, an efficient technique to enhance the isolation between two closely spaced PIFAs for MIMO mobile terminals is introduced. The proposed decoupling method is based on a T-shape slot impedance transformer and it enables an inter-PIFA spacing of 1 mm to be achieved. The 10 dB impedance bandwidth and 20 dB isolation bandwidth cover the 2.4 GHz WLAN band (2.4-2.48 GHz), with a maximum isolation of 44 dB. The efficiency, gain, radiation patterns of the two-PIFA prototype are also verified in measurements.				
TD(11)01064	An Indoor Radio Propagation Prediction Tool: PixelFlow. Is it good enough for Radio Network Simulations?	Jean-Frédéric Wagen, Fribourg University of Applied Sciences	WG1 - Radio Channel (alternatively joint WG1 and WG3 session)	wave propagation model, radio network simulation, radio link simulations for link adaptation and scheduling
An indoor radio propagation prediction model based on a very simple time-domain approach is presented and discussed. This model called PixelFlow offers some advantages: a computation speed independent of the number of antennas and a robustness against inaccurate floor plans. The model is used for indoor coverage predictions but it remains to be seen if is appropriate for radio network simulations. This contribution aims to open discussions on this topic.				