
Over-the-Air (OTA) Testing

— Journal Publications —

- [J1] Rajesh K. Sharma, Wim Kotterman, Markus H. Landmann, Christopher Schirmer, Christian Schneider, Frank Wollenschläger, Giovanni Del Galdo, Matthias A. Hein, and Reiner S. Thomä. Over-the-air testing of cognitive radio nodes in a virtual electromagnetic environment. *International Journal of Antennas and Propagation*, 2013(945283):1–16, 2013.
- [J2] Moray Rumney, Ryan Pirkel, Markus Landmann, and David A. Sanchez-Hernandez. MIMO over-the-air research, development, and testing. *International Journal of Antennas and Propagation, Special Issue on MIMO Over-The-Air Research, Development, and Testing*, 2012.

— Conference Publications —

- [C1] Rajesh K. Sharma, Christian Schneider, Wim Kotterman, Gerd Sommerkorn, Peter Grosse, Frank Wollenschläger, Giovanni Del Galdo, Matthias A. Hein, and Reiner S. Thomä. Virtual electromagnetic environment for over-the-air testing of car-to-car and car-to-infrastructure communication. In *XXXIth URSI General Assembly and Scientific Symposium (URSI GASS)*, Beijing, PR China, August 2014.
- [C2] Christopher Schirmer, Markus Landmann, Wim Kotterman, Gregor Siegert, Alexander Rügamer, Giovanni Del Galdo, and Albert Heuberger. Real world GNSS test environment under laboratory conditions. In *International Symposium on Certification of GNSS Systems & Services (CERGA)*, Dresden, Germany, pages 25–31, July 2014.
- [C3] Christopher Schirmer, Wim Kotterman, Gregor Siegert, Alexander Rügamer, Giovanni Del Galdo, Albert Heuberger, and Markus Landmann. Accuracy of an OTA system emulating a realistic 3D environment for GNSS and multi-satellite receiver testing. In *IEEE 8th Sensor Array and Multichannel Signal Processing Workshop (SAM)*, pages 113–116, A Coruña, Spain, June 2014.
- [C4] Wim Kotterman, Christopher Schirmer, Markus Landmann, and Giovanni Del Galdo. On arranging dual-polarised antennas in 3D wave field synthesis. In *8th European Conference on Antennas and Propagation (EuCAP)*, pages 3406–3410, The Hague, Netherlands, April 2014.
- [C5] Christopher Schirmer, Markus Landmann, Wim Kotterman, Matthias Hein, Reiner S. Thomä, Giovanni Del Galdo, and Albert Heuberger. 3D wave-field synthesis for testing of radio devices. In *8th European Conference on Antennas and Propagation (EuCAP)*, pages 3394–3398, The Hague, Netherlands, April 2014.
- [C6] Rajesh K. Sharma, Christian Schneider, Wim Kotterman, Gerd Sommerkorn, Peter Grosse, Frank Wollenschläger, Giovanni Del Galdo, Matthias A. Hein, and Reiner S. Thomä. Over-the-air testing of car-to-car and car-to-infrastructure communication in a virtual electromagnetic environment. In *IECON 2013 - 39th Annual Conference of the IEEE Industrial Electronics Society*, pages 6897–6902, Vienna, Austria, November 2013.
- [C7] Gregor Siegert, Giovanni Del Galdo, Franziska Klier, Johannes Mahry, Günter Rohmer, Alexander Rügamer, and Markus Landmann. Multi-directional over the air testbed for robustness testing of

GNSS receivers against jammers and spoofers. In *AIAA International Communications Satellite System Conference (ICSSC)*, Florence, Italy, October 2013.

- [C8] Alexander Rügamer, Giovanni Del Galdo, Johannes Mahr, Günter Rohmer, Gregor Siegert, and Markus Landmann. GNSS over-the-air testing using wave field synthesis. In *ION GNSS 2013*, Nashville, Tennessee, USA, September 2013.
- [C9] Markus Landmann, Marcus Grossmann, Naveen Phatak, Christian Schneider, Reiner Thomae, and Giovanni Del Galdo. Performance analysis of channel model simplifications for MIMO OTA LTE UE testing. In *7th European Conference on Antennas and Propagation (EuCAP)*, pages 1856–1860, Gothenburg, Sweden, April 2013.
- [C10] Wim Kotterman. Increasing the volume of test zones in anechoic chamber MIMO over-the-air test set-ups. In *International Symposium on Antennas and Propagation (ISAP)*, pages 786–789, Nagoya, Japan, October 2012.
- [C11] Michael Grimm, Alexander Krah, Noman Murtaza, Rajesh Kumar Sharma, Markus Landmann, Reiner Thomä, Albert Heuberger, and Matthias Hein. Performance evaluation of directional spectrum sensing using an over-the-air testbed. In *CogART '11 Proceedings of the 4th International Conference on Cognitive Radio and Advanced Spectrum Management*, pages 1–5, Barcelona, Spain, October 2011.
- [C12] Alexander Krah, Michael Grimm, Noman Murtaza, Wim Kotterman, Markus Landmann, Albert Heuberger, Reiner Thomä, and Matthias Hein. Over-the-air test strategy and testbed for cognitive radio nodes. In *URSI General Assembly Scientific Symposium*, Istanbul, Turkey, August 2011.
- [C13] Wim Kotterman, Markus Landmann, Albert Heuberger, and Reiner Thomä. New laboratory for over-the-air testing and wave field synthesis. In *URSI General Assembly Scientific Symposium*, Istanbul, Turkey, August 2011.
- [C14] Wim Kotterman, Albert Heuberger, and Reiner Thomä. On the accuracy of synthesised wave fields in MIMO-OTA setups. In *5th European Conference on Antennas and Propagation (EuCAP)*, pages 2560–2564, Rome, April 2011.
- [C15] Martin Käske, Christian Schneider, Wim Kotterman, and Reiner Thomä. Solving the problem of choosing the right MIMO measurement antenna: Embedding/de-embedding. In *5th European Conference on Antennas and Propagation (EuCAP)*, pages 2551–2555, Rome, 11–15 April 2011.

— Other Publications —

- [O1] Wim Kotterman, Markus Landmann, Horst Heringklee, Rainer Perthold, Matthias Hein, Reiner Thomä, and Giovanni Del Galdo. Realistic testing of operational radio communications from and to vehicles in virtual electromagnetic environments. In *6th ETSI Workshop on Intelligent Transport Systems*, Berlin, Germany, February 2014.
- [O2] Wim Kotterman and Giovanni Del Galdo. Influence of complex amplitude errors on the quality of synthesised wave fields. Technical Report COST IC1004 TD(13)07054, COST IC1004 action, Ilmenau, Germany, May 2013.
- [O3] Rajesh Kumar Sharma, Christian Schneider, Wim Kotterman, Frank Wollenschläger, Giovanni Del Galdo, Matthias A. Hein, and Reiner S. Thomä. Over-the-air testing: An overview of the ongoing activities in ilmenau. Technical Report IC1004 TD(13)07039, COST IC1004 action, Ilmenau, Germany, May 2013.

- [O4] Alexander Krah, Michael Grimm, Noman Murtaza, Wim Kotterman, Rajesh Sharma, Markus Landmann, Albert Heuberger, Reiner Thomä, and Matthias Hein. Over-the-air test strategy and testbed for cognitive radio nodes. Technical report, COST IC0902 action, Castelldefels/Barcelona, Spain, October 2011.
- [O5] Wim Kotterman, Albert Heuberger, and Reiner Thomä. On the accuracy of synthesised wave fields in MIMO-OTA setups. Technical Report COST2100 TD(12)12070, COST 2100 action, Bologna, Italy, November 2010.
- [O6] Martin Käske, Christian Schneider, Wim Kotterman, and Reiner Thomä. Solving the problem of choosing the right MIMO measurement antenna: Embedding/de-embedding. Technical Report COST2100 TD(12)12081, COST 2100 action, Bologna, Italy, November 2010.
- [O7] Wim Kotterman, Alexander Krah, Markus Landmann, Albert Heuberger, and Reiner Thomä. Over-the-air test vision for cognitive radio nodes. Technical Report TERRA-WG2(11)03, COST IC0905 TERRA action, Lisbon, Portugal, January 2011.
- [O8] Wim Kotterman, Alexander Krah, Albert Heuberger, and Reiner Thomä. TU Ilmenau’s participation in the OTA HSDPA Round Robin. Technical Report COST2100 TD(11)11059, COST 2100 action, Aalborg, Denmark, June 2010.
- [O9] Alexander Krah, Michael Grimm, Noman Murtaza, Markus Landmann, Albert Heuberger, and Reiner Thomä. OTA-test of a frequency- and space-selective cognitive radio node in receive mode. Technical Report COST2100 TD(10)12087, COST 2100 action, Bologna, Italy, November 2010.

— **Master Theses** —

- [M1] Robert Damm. Entwicklung und Implementierung eines MIMO-OTA-Kalibrationsverfahren. Master thesis, 2015. The work was carried out at Fraunhofer IIS.
- [M2] Henning Priebs. In-situ Calibration for Electromagnetic Wave Field Synthesis. Master thesis, Technische Universität Ilmenau, 2014.
- [M3] Usman Sherwani. Channel modeling and measurements for wireless sensor nodes in critical channel conditions. Master thesis, Technische Universität Ilmenau, 2014. The work was carried out at Fraunhofer IIS.
- [M4] Sher Ali Cheema. Performance Analysis of 3GPP LTE-A transmission modes with emulated MIMO channels in a multi-probe OTA testing Setup. Master thesis, Technische Universität Ilmenau, 2013. The work was carried out at Fraunhofer IIS.
- [M5] Naveen Phatak. Minimum emulation requirements for over the air LTE user equipment test. Master thesis, Technische Universität Ilmenau, 2012. The work was carried out at Fraunhofer IIS.

— **Bachelor Theses** —

- [B1] Christian Steinmetz. Entwurf einer GSM-R-Gruppenantenne zur Richtungsschätzung. Bachelor thesis, Technische Universität Ilmenau, 2014. The work was carried out at Fraunhofer IIS.
- [B2] Robert Damm. Bestimmung parasitärer Reflektionen in einem OTA Wellefeldsynthese Aufbau unter Anwendung von Parameterschätzalgorithmen. Bachelor thesis, Technische Universität Ilmenau, 2013.

SatCom-on-the-Move (SOTM) Testing

— Conference Publications —

- [C1] Gregor Siegert, Wolfgang Felber, Florian Rasche, Mostafa Alazab, Dirk Ogermann, Andreas Knopp, and Markus Landmann. Advances of far field test range for satcom on-the-move terminals. In *7th Advanced Satellite Multimedia Systems Conference and the 13th Signal Processing for Space Communications Workshop (ASMS/SPSC)*, pages 428–435, Livorno, Italy, September 2014.
- [C2] Gregor Siegert, Giovanni Del Galdo, Florian Raschke, Gerold Jäger-Waldau, and Markus Landmann. SOTM terminal testing under real-world conditions. In *AIAA International Communications Satellite System Conference (ICSSC)*, Florence, Italy, October 2013.
- [C3] Mostafa Alazab, Giovanni Del Galdo, Wolfgang Felber, Florian Raschke, Gregor Siegert, and Markus Landmann. Performance comparison of antenna de-pointing estimation methods for SOTM terminal testing. In *AIAA International Communications Satellite System Conference (ICSSC)*, Florence, Italy, October 2013.
- [C4] Gregor Siegert, Giovanni Del Galdo, Florian Raschke, Gerold Jäger-Waldau, and Markus Landmann. SOTM terminal testing under real-world conditions. In *ESA Antenna Workshop*, ESTEC, Noordwijk, The Netherlands, September 2013.
- [C5] Mostafa Alazab, Giovanni Del Galdo, Wolfgang Felber, Florian Raschke, Gregor Siegert, and Markus Landmann. Comparison of SOTM antenna pointing accuracy estimation methods. In *ESA Antenna Workshop*, ESTEC, Noordwijk, The Netherlands, September 2013.
- [C6] Mostafa Alazab, Marie Rieche, Markus Landmann, and Giovanni Del Galdo. Realistic emulation of the operational environment for satcom on-the-move (SOTM) terminals. In *IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (APWC)*, Torino, Italy, September 2013.
- [C7] Mostafa Alazab, Giovanni Del Galdo, Wolfgang Felber, Albert Heuberger, Mario Lorenz, Florian Raschke, Gregor Siegert, and Markus Landmann. SOTM terminals evaluation under realistic conditions. In *IEEE 77th Vehicular Technology Conference (VTC2013-Spring)*, Dresden, Germany, June 2013.
- [C8] Mostafa Alazab, Wolfgang Felber, Giovanni Del Galdo, Albert Heuberger, Mario Lorenz, Markus Mehnert, Florian Raschke, Gregor Siegert, and Markus Landmann. Pointing accuracy evaluation of SOTM terminals under realistic conditions. In *34rd ESA Antenna Workshop on Challenges for Space Antenna Systems*, ESTEC, Noordwijk, The Netherlands, October 2012. ESA.
- [C9] Markus Landmann, Albert Heuberger, Markus Mehnert, Wolfgang Felber, Mario Lorenz, Florian Raschke, and Gregor Siegert. On earth realistic testing of satellite communication terminals on the move. In *33rd ESA Antenna Workshop on Challenges for Space Antenna Systems*, ESTEC, Noordwijk, The Netherlands, October 2011. ESA.
- [C10] Mario Lorenz, Markus Mehnert, and Albert Heuberger. Measurements of mechanical disturbances of vehicle mounted, mobile very small aperture terminals (VSAT). In *Proceedings of the 11th Workshop Digital Broadcasting*, pages 61–65, Erlangen, Germany, September 2010.

— Other Publications —

- [O1] Florian Raschke. KASYMOSA - Ka-Band-Systeme für die mobile Satellitenkommunikation. In *GOSATCOM 2015*, Neubiberg, Germany, October 2015. Abstract + Talk (no paper).
- [O2] Mostafa Alazab, Florian Raschke, Giovanni Del Galdo, and Markus Landmann. Conditions for satcom on-the-move (sotm) testing and type approving. In *GOSATCOM 2015*, Neubiberg, Germany, October 2015. Abstract + Talk (no paper).
- [O3] Mostafa Alazab, Florian Raschke, Giovanni Del Galdo, Colin Robinson, Martin Jarrold, David Hartshorn, Rolv Midthassel, and Markus Landmann. On standardizing conditions for SOTM testing and type approving. In *36th ESA Antenna Workshop on Antennas and RF Systems for Space Science*, ESTEC, Noordwijk, October 2015. Abstract + Poster (no paper).

— Master Theses —

- [M1] Niklas Beuster. Development of calibration procedures for a satellite communication test range. Master thesis, Technische Universität Ilmenau, 2015. The work was carried out at Fraunhofer IIS.
- [M2] Stefan Dornheim. Magnetic field emulation for mobile satellite communication terminals - concept, design and verification. Master thesis, Technische Universität Ilmenau, 2014. The work was carried out at Fraunhofer IIS.
- [M3] Johannes Mahr. Untersuchung der Abhängigkeiten zwischen Fahrzeugschütterungen und begleitenden Bildinformationen. Master thesis, Technische Universität Ilmenau, 2012. The work was carried out at Fraunhofer IIS.
- [M4] Mostafa Alazab. Measurement Setup for Antenna Depointing Estimation – Testing Satellite Communication On-The-Move (SOTM) Earth Terminals at the Fraunhofer Test Facility. Master thesis, Technische Universität Ilmenau, 2012. The work was carried out at Fraunhofer IIS.
- [M5] Gregor Siegert. Anforderungen an die Dynamik von mobiler Satellitenkommunikation. Diplom thesis, Technische Universität Ilmenau, 2010. The work was carried out at Fraunhofer IIS.
- [M6] Florian Raschke. Vergleichende Untersuchungen von Satellitenstrecken an einem experimentellen Aufbau im Ku- und Ka-Band. Diplom thesis, Technische Universität Ilmenau, 2010. The work was carried out at Fraunhofer IIS.

— Bachelor Theses —

- [B1] Volker Henze. Research on performance evaluation metrics for mobile satellite communication networks. Bachelor thesis, Technische Universität Ilmenau, 2015. The work was carried out at Fraunhofer IIS.
- [B2] Lukas Treybig. Konzeption und Verifikation einer Satellitenemulation für Ku- und Ka-Band-Satelliten. Bachelor thesis, Technische Universität Ilmenau, 2012. The work was carried out at Fraunhofer IIS.

Miscellaneous

- [1] Jens Steinwandt, Florian Roemer, Martin Haardt, and Giovanni Del Galdo. R-Dimensional ESPRIT-type algorithms for strictly second-order non-circular sources and their performance analysis. *IEEE Transactions on Signal Processing*, 62:4824–4838, September 2014.
- [2] Marie Rieche, Alexander Ihlow, Daniel Arndt, Fernando Pérez-Fontán, and Giovanni Del Galdo. Modeling of the land mobile satellite channel considering the terminal’s driving direction. *International Journal of Antennas and Propagation*, 2014(372124):1–21, 2014.
- [3] Florian Roemer, Martin Haardt, and Giovanni Del Galdo. Analytical performance assessment of multi-dimensional matrix- and tensor-based ESPRIT-type algorithms. *IEEE Transactions on Signal Processing*, 62:2611–2625, May 2014.
- [4] Milan Narandžić, Christian Schneider, Wim Kotterman, and Reiner S. Thomä. Quantification of scenario distance within generic WINNER channel model. *International Journal of Antennas and Propagation, Special Issue on Radio Wave Propagation and Wireless Channel Modeling*, 2013(176704):1–17, 2013.
- [5] Daniel Arndt, Alexander Ihlow, Albert Heuberger, and Ernst Eberlein. State modelling of the land mobile propagation channel with multiple satellites. *International Journal of Antennas and Propagation, Special Issue on Radio Wave Propagation and Wireless Channel Modeling*, 2012(625374):1–15, 2012.
- [6] Daniel Arndt, Alexander Ihlow, Thomas Heyn, Albert Heuberger, Roberto Prieto-Cerdeira, and Ernst Eberlein. State modelling of the land mobile propagation channel for dual-satellite systems. *EURASIP Journal on Wireless Communications and Networking*, 2012(228):1–21, 2012.
- [7] Markus Landmann, Martin Käske, and Reiner S. Thomä. Impact of incomplete and inaccurate data models on high resolution parameter estimation in multidimensional channel sounding. *IEEE Transactions on Antennas and Propagation*, 60:557–573, February 2012.
- [8] Marcus Grossmann and Christian Schneider. Groupwise frequency domain multiuser MMSE turbo equalization for single carrier block transmission over spatially-correlated channels. *IEEE Journal of Selected Topics in Signal Processing*, 5(8):1548–1562, December 2011.
- [9] Marko Milojevic, Giovanni Del Galdo, Nuang Song, Martin Haardt, and Albert Heuberger. Impact of the receive antenna arrays on spatio-temporal availability in satellite-to-indoor broadcasting. *IEEE Transactions on Broadcasting*, 56(2):171–183, June 2010.
- [10] Marko Milojevic, Martin Haardt, Ernst Eberlein, and Albert Heuberger. Channel modelling for multiple satellite broadcasting systems. *IEEE Transactions on Broadcasting*, 55(4):705–718, December 2009.
- [11] Albert Heuberger. Fade correlation and diversity effects in satellite broadcasting to mobile users in S-band. *International Journal of Satellite Communications and Networking*, 26:359–379, 2008.
- [12] Berk Ozer, Anastasia Lavrenko, Sinan Gezici, Florian Roemer, Giovanni Del Galdo, and Orhan Arikan. Adaptive measurement matrix design for compressed DoA estimation with sensor arrays. In *Proc. 49-th Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, November 2015.

- [13] Mohamed Ibrahim, Florian Roemer, Niels Hadaschik, Hans-Martin Troeger, Benjamin Sackenreuter, Norbert Franke, Joerg Robert, and Giovanni Del Galdo. Compressed temporal synchronization with opportunistic signals. In *Proc. 49-th Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, November 2015.
- [14] Mohamed Ibrahim, Florian Roemer, and Giovanni Del Galdo. On the design of the measurement matrix for compressed sensing based DOA estimation. In *Proc. IEEE Int. Conf. Acoustics, Speech and Sig. Proc. (ICASSP 2015)*, Brisbane, Australia, April 2015.
- [15] Anastasia Lavrenko, Florian Roemer, Giovanni Del Galdo, and Reiner S. Thomae. Sparsity order estimation for Sub-Nyquist sampling and recovery of sparse multiband signals. In *Proc. IEEE ICC Sig. Proc. for Comm. Symposium*, London, UK, June 2015.
- [16] Tobias Schoen, Florian Roemer, Steven Oeckl, Marcus Grossmann, Roland Gruber, Alexander Jung, and Giovanni Del Galdo. Cycle time reduction in process integrated computed tomography using compressed sensing. In *Proc. 13th Intl. Meeting on Fully 3-D Image Reconstr. in Radiology and Nuclear Medicine*, Newport, RI, May 2015.
- [17] Sergii Skoblikov, Florian Roemer, Mohamed Ibrahim, Reiner S. Thomae, and Giovanni Del Galdo. DoA estimation with reflectarray according to single pixel camera principle. In *3rd International Workshop on Compressed Sensing applied to RADAR (CoSeRa 2015)*, Pisa, Italy, June 2015.
- [18] Sergii Skoblikov, Mohamed Ibrahim, Florian Roemer, and Reiner S. Thomae. Numerical assessment of reflectarray applicability to CS-based DoA estimation. In *Proceedings of the International Radar Symposium 2015*, Dresden, Germany, June 2015.
- [19] Anastasia Lavrenko, Florian Roemer, Giovanni Del Galdo, Reiner S. Thomae, and Orhan Arikan. Detection of time-varying support via rank evolution approach for effective joint sparse recovery. In *Proceedings of the 23rd European Signal Processing Conference (EUSIPCO-2015)*, Nice, France, August 2015.
- [20] Mohamed Ibrahim, Florian Roemer, and Giovanni Del Galdo. An adaptively focusing measurement design for compressed sensing based DOA estimation. In *Proceedings of the 23rd European Signal Processing Conference (EUSIPCO-2015)*, Nice, France, August 2015.
- [21] Mohamed Ibrahim, Florian Roemer, Niels Hadaschik, Hans-Martin Troeger, Benjamin Sackenreuter, Norbert Franke, Joerg Robert, and Giovanni Del Galdo. Temporal wireless synchronization with compressed opportunistic signals. In *Proc. of the IEEE Radio Wireless Week, Wireless Sensors and Sensor Networks Symposium*, Austin, TX, January 2016.
- [22] Anastasia Lavrenko, Florian Roemer, Giovanni Del Galdo, and Reiner S. Thomae. On the sensing matrix performance for support recovery of noisy sparse signals. In *Proceedings of the 2nd Global Conference on Signal and Information Processing (GlobalSIP)*, Atlanta, GA, December 2014.
- [23] Florian Roemer, Anastasia Lavrenko, Giovanni Del Galdo, Thomas Hotz, Orhan Arikan, and Reiner S. Thomä. Sparsity order estimation for single snapshot compressed sensing. In *Proc. 48-th Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, November 2014.
- [24] Anastasia Lavrenko, Florian Roemer, Giovanni Del Galdo, Reiner S. Thomä, and Orhan Arikan. An empirical eigenvalue threshold test for sparsity level estimation from compressed measurements. In *Proc. 22-nd European Sig. Proc. Conf. (EUSIPCO-2014)*, Lisbon, Portugal, September 2014.

- [25] Florian Roemer, Giovanni Del Galdo, and Martin Haardt. Tensor-based algorithms for learning multi-dimensional separable dictionaries. In *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2014)*, pages 3963–3967, Florence, Italy, May 2014.
- [26] Mohamed Ibrahim, Florian Roemer, Roman Alieiev, Giovanni Del Galdo, and Reiner S. Thomä. On the estimation of grid offsets in CS-based direction-of-arrival estimation. In *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2014)*, pages 6776–6780, Florence, Italy, May 2014.
- [27] Jonas König, Alexander Ihlow, Albert Heuberger, and Giovanni Del Galdo. Diversity combining for cooperative satellite terminals in a moving convoy of vehicles. In *8th European Conference on Antennas and Propagation (EuCAP)*, pages 3035–3039, The Hague, Netherlands, April 2014.
- [28] Marie Rieche, Daniel Arndt, Alexander Ihlow, Fernando Pérez-Fontán, and Giovanni Del Daldo. Impact of driving direction on land mobile satellite channel modeling. In *8th European Conference on Antennas and Propagation (EuCAP)*, pages 2268–2271, The Hague, Netherlands, April 2014.
- [29] Florian Roemer, Mohamed Ibrahim, Roman Alieiev, Markus Landmann, Reiner S. Thomä, and Giovanni Del Galdo. Polarimetric compressive sensing based DOA estimation. In *Proceedings of the 18th ITG Workshop on Smart Antennas (WSA '14)*, Erlangen, Germany, March 2014.
- [30] Christopher Schirmer, Mohamed Alzarouk Alsharef, Wim Kotterman, Alexander Ihlow, Giovanni Del Galdo, and Albert Heuberger. High time-resolution spectrum occupancy model for testing of cognitive radio devices. In *24th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, pages 596–600, London, UK, September 2013.
- [31] Florian Roemer and Giovanni Del Galdo. Tensor-based dictionary learning for multidimensional sparse recovery: the K-HOSVD. In *2nd International Workshop on Compressed Sensing applied to RADAR (CoSeRa 2013)*, Bonn, Germany, September 2013.
- [32] Florian Roemer, Roman Alieiev, Mohamed Ibrahim, Giovanni Del Galdo, and Reiner Thomä. An analytical study of sparse recovery algorithms in presence of an off-grid source. In *2nd International Workshop on Compressed Sensing applied to RADAR (CoSeRa 2013)*, Bonn, Germany, September 2013.
- [33] Anastasia Lavrenko, Florian Roemer, Reiner Thomä, and Giovanni Del Galdo. On the choice of mixing sequences for SNR improvement in modulated wideband convertor. In *2nd International Workshop on Compressed Sensing applied to RADAR (CoSeRa 2013)*, Bonn, Germany, September 2013.
- [34] Marie Rieche, Daniel Arndt, Alexander Ihlow, and Giovanni Del Galdo. Influence of driving direction on land mobile satellite channels. In *IEEE International Symposium on Broadband Multimedia Systems and Broadcasting*, pages 1–5, London, UK, June 2013.
- [35] Jonas König, Alexander Ihlow, Daniel Arndt, Albert Heuberger, and Giovanni Del Galdo. Measurement-based performance analysis of cooperative satellite diversity in a moving convoy. In *IEEE 77th Vehicular Technology Conference (VTC2013-Spring)*, pages 1–5, Dresden, Germany, June 2013.
- [36] Marie Rieche, Daniel Arndt, Alexander Ihlow, and Giovanni Del Galdo. State modeling of the land mobile satellite channel by an image-based approach. In *7th European Conference on Antennas and Propagation (EuCAP)*, pages 672–676, Gothenburg, Sweden, April 2013.
- [37] Jörg Fischer, Marcus Grossmann, Wolfgang Felber, Markus Landmann, and Albert Heuberger. A novel delay spread distribution model for VHF and UHF mobile-to-mobile channels. In *7th European Conference on Antennas and Propagation (EuCAP)*, pages 461–464, Gothenburg, Sweden, April 2013.

- [38] Jörg Fischer, Marcus Grossmann, Wolfgang Felber, Markus Landmann, and Albert Heuberger. A delay spread distribution model based on measurements of the mobile-to-mobile channel in the frequency band from 30 MHz to 400 MHz. In *IEEE International Conference on Wireless Information Technology and Systems (ICWITS)*, Maui, Hawaii, November 2012.
- [39] Jörg Fischer, Marcus Grossmann, Wolfgang Felber, Markus Landmann, and Albert Heuberger. A measurement-based path loss model for wireless links in mobile ad-hoc networks (MANET) operating in the VHF and UHF band. In *IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications*, Cape Town, South Africa, September 2012.
- [40] Marie Rieche, Daniel Arndt, Alexander Ihlow, Markus Landmann, and Giovanni Del Galdo. Image-based state modeling of the land mobile satellite channel for multi-satellite reception. In *34rd ESA Antenna Workshop on Challenges for Space Antenna Systems*, ESTEC, Noordwijk, The Netherlands, October 2012. ESA.
- [41] Daniel Arndt, Thomas Heyn, Jonas König, Alexander Ihlow, Albert Heuberger, Roberto Prieto-Cerdeira, and Ernst Eberlein. Extended two-state narrowband LMS propagation model for S-band. In *IEEE International Symposium on Broadband Multimedia Systems and Broadcasting*, Seoul, June 2012.
- [42] Jonas König, Daniel Arndt, Alexander Ihlow, and Albert Heuberger. Estimation of fading parameter correlation for modeling the land mobile satellite channel. In *IEEE International Symposium on Broadband Multimedia Systems and Broadcasting*, Seoul, June 2012.
- [43] Daniel Arndt, Thomas Heyn, Albert Heuberger, Roberto Prieto-Cerdeira, and Ernst Eberlein. State modeling of the land mobile satellite channel with angle diversity. In *6th European Conference on Antennas and Propagation (EuCAP)*, pages 3140–3144, Prague, March 2012.
- [44] Noman Murtaza, Alexander Krah, Michael Grimm, Albert Heuberger, Reiner Thomä, and Matthias A. Hein. Multi-band direction-sensitive cognitive radio node. In *IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (APWC)*, pages 251–254, September 2011.
- [45] Daniel Arndt, Alexander Ihlow, Albert Heuberger, and Ernst Eberlein. Measurement-based evaluation of antenna- and time diversity for mobile satellite systems. In *The 11th International Conference on Telecommunications*, pages 457–464, Graz, June 2011.
- [46] Daniel Arndt, Alexander Ihlow, Albert Heuberger, Thomas Heyn, and Ernst Eberlein. QoS prediction for mobile satellite broadcasting with angle diversity based on measurements. In *IEEE International Symposium on Broadband Multimedia Systems and Broadcasting*, Nuremberg, June 2011.
- [47] Alexander Ihlow, Daniel Arndt, Felix Topf, Christoph Rothaug, Thomas Wittenberg, and Albert Heuberger. Photogrammetric satellite service prediction - correlation of RF measurements and image data. In *IEEE International Symposium on Broadband Multimedia Systems and Broadcasting*, Nuremberg, June 2011.
- [48] Ernst Eberlein, Frank Burkhardt, Carmen Wagner, Albert Heuberger, Daniel Arndt, and Roberto Prieto-Cerdeira. Statistical evaluation of the MIMO gain for LMS channels. In *5th European Conference on Antennas and Propagation (EuCAP)*, pages 2695–2699, Rome, April 2011.
- [49] Daniel Arndt, Alexander Ihlow, Albert Heuberger, and Ernst Eberlein. Antenna diversity for mobile satellite applications: Performance evaluation based on measurements. In *5th European Conference on Antennas and Propagation (EuCAP)*, pages 3729–3733, Rome, April 2011.

- [50] Alexander Ihlow, Christian Held, Christoph Rothaug, Claudia Dach, Thomas Wittenberg, and Dirk Steckhan. Evaluation of Expectation Maximization for the segmentation of cervical cell nuclei. In *Bildverarbeitung für die Medizin*, Lübeck, March 2011.
- [51] Markus Mehnert, Mostafa Al-Azab, Alexander Ihlow, Albert Heuberger, and Kurt Blau. Noise measurements for mobile satellite applications. In *Proceedings of the 11th Workshop Digital Broadcasting*, pages 55–60, Erlangen, Germany, September 2010.
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