December 18, 2015

Activity Report of URSI-F

Reported by Y. Maekawa (Chair)

1. Commission meetings in the period of July – December 2015
(For more detail, please see http://ursi-f.nict.go.jp/)

(1) No. 596 Meeting
Date: July 30-31, 2015 Place: Wakkanai Sogo Bunka Center (Hokkaido)

This meeting was held under the co-sponsorship of IEICE Technical Committee on AP, and IEEE AP-S Tokyo Chapter. Eleven papers relevant to the field of URSI-F were presented:

1. Relationship between Rain Cloud Motion along the Propagation Path and Ground Wind Velocity around the Earth Station in Ku-Band Satellite Communications Links
2. Interference Evaluation of Millimeter Wave Band Massive-MIMO Equipped with by a Mobile Terminal
3. Configuration and Characteristics of Radio Wave Anechoic Chamber with Easily Assembled Structure
4. Evaluation of Wireless Area by Ray Tracing Method at 3.5GHz Band -- On Beam Tilting Effect –
5. Accuracy Improvement of Ray-Tracing Method with Rounded-Shape (RS) Model for Non Line-Of-Site (NLOS) Route in Street Cell Environment -- Consideration of Building Shape and Surface Roughness –
6. A Regression Formula of Propagation Loss in Obliquely-Crossed Road for Inter-Vehicle and Pedestrian-to-Vehicle Communications -- In a case of No Path Shadowing between Transmitter and Receiver –
7. A Study of LOS Rate Definition for Sloping Terrain Correction Equation in Urban Path Loss Estimation Formula
8. Urban model for path loss of microcell in consideration of frequency characteristics
9. Evaluation of DOA Estimation Using a Compressed Sensing Technique for Arrival Signals with Different Amplitudes
10. Multi-beam massive MIMO with blind adaptive array eliminating CSI estimation
11. A Terminal Position Estimation Method based on Position Fingerprint using Directional Antennas

For more details, please see: http://www.ieice.org/cs/ap/jpn/

(2) No. 597 Meeting
Date: September 24, 2015 Place: Osaka Electro-Communication University, Ekimae Campus (Osaka)

Three papers were presented:

1. Identification of Line of Sight by Cross Polarization Characteristic
2. Analysis of Rain Attenuation Characteristics and Rain Front Velocity in Ku-band Satellite Communication Links
3. Reproducibility of scale model in relation to the path loss at 30MHz in micro cell

(3) No. 598 Meeting
Date: November 4-6, 2015 Place: Okinawa Prefectural Museum & Art Museum (Okinawa)

This meeting was held under the co-sponsorship of IEICE Technical Committee on AP, SAT, RCS, WPT, and IEEE AP-S Fukuoka Chapter. Twenty papers relevant to the field of URSI-F were presented mainly in the special sessions organized for recent propagation issues:

1. Time-Spatial Characteristics Between Indoors of Different LOS Buildings in Mobile Communications
2. Outdoor-to-Indoor Path Loss Characteristics for 8GHzto 37GHzBand
3. Transmit Performance of Analog Beamforming MIMO System in Practical Outdoor Environment using High Frequency Band
4. Trend of MIMO systems in the Next Generation Millimeter Wave Wireless LAN Standard IEEE 802.11ay
5. A study on beam selection for multi-beam massive MIMO
6. Path Loss Characteristics of Wideband Channels at 4.5 GHz
7. On efficient utilization on spatial propagation environment

8. Stochastic Channel Model for Residential Microcellular Environments at 11GHz
9. Characteristics of Indoor Radio Propagation Channel at 20 GHz Band
10. A Study of User Scheduling for Millimeter Wave MU-MIMO Systems -- Evaluation with Small Conference Room Channel Model and 3-secter Access Point –
11. Ericsson's 5G Concept and Overview of Radio Access Trial
12. Massive MIMO Technology Using Higher Frequency Bands for 5G
13. Characteristics Evaluation of Dense Multipath Component in 11GHz-band Indoor Environment
14. Characterization of Radio Propagation Channel for Microwave and Millimeter Wave Mobile Communication Systems -- Toward 5G New Radio Access Technology --
15. Path Loss Characteristics from 0.8 GHz to 37 GHz Bands on Single Floor in Indoor Office
16. Directional Characteristics of Millimeter Wave Propagation Channel in Outdoor Urban Picocell
17. Effective use of the First Eigen-modes on Massive MIMO communication in LOS environment
18. Receiver System for monitoring Broadcasting Satellite Service in Japan
19. A Study on Relationship between Rain Area Velocities and Rain Attenuation Observations at 3 Locations in Ku-Band Satellite Communications Links
20. A Measurement of Propagation in High Mobility Environments for Ka Band Satellite Communication

For more details, please see: http://www.ieice.org/cs/ap/jpn/

(4) No. 599 Meeting
Date: November 4-6, 2015 Place: Tohoku University, Katahira Campus (Miyagi)

This meeting was held under the co-sponsorship of IEICE Technical Committee on SANE, IEEE AES Society Japan Chapter, and SEGJ (Society of Exploration Geophysicists of Japan). Eighteen papers relevant to the field of URSI-F were presented in the field of remote sensing:

1. Advanced Neural Adaptive Processing in Interferometric and Polarimetric Radar Imaging
2. The State of the Art in Ground Penetrating Radar and the Regulation of Electromagnetic Wave
3. Development of Non-Destructive Sensor for Wooden Structures (5) -- Measurement of Electrical Characteristics of the Wood –
4. Practical Examples of Negative Apparent Conductivity obtained by One of General Exploration Instruments for the Induction Method and a Trial for Subsurface Interpretation
5. Reconstruction of buried objects based on multistatic GPR - The Format of
6. Development of an Array GPR System YAKUMO for Large-scale Archaeological Survey and Disaster Mitigation
7. Archaeology and geophysical integrated survey results for Xiongnu period site, Mongolia
8. Evaluation of soil by seismic survey using tunnel explosion source
9. Development of GPR Using Short Chirp Signal
10. Time lag evaluation for GPR positioning by RTK-GNSS or self-tracking TS
11. Application of frequency sweep vibro Doppler measurement to ISAR imaging
12. Underground characteristic of antenna formed on excavating bucket for front exploration RADAR
13. Problems and perspectives of the analysis of coastal recovery process due to tsunami using Ground Penetrating Radar
14. Simultaneous Estimation of Velocity and Thickness of Stratified Material with Array GPR System YAKUMO
15. SIP Infrastructure Maintenance Management Technology and Significance of Monitoring Technology
16. Development of Non-Destructive Inspection Sensor for Wooden Structures (6) -- Development of 3D Imaging Radar Prototype –
17. Application of 3D array radar to inspection of concrete floor
18. A long-term monitoring of a landslide slope in Kurihara-city, Miyagi, by GB-SAR

For more details, please see: http://www.ieice.org/cs/sane/jpn/

(5) No. 600 Meeting
Date: December 9, 2015 Place: National Institute of Information and Communications Technology (Tokyo)

Four Papers are presented in commemoration of the 600th URSI-F meeting.

1. Report on recent activities of URSI Commission F in Japan
2. Electromagnetic wave propagation and scattering in rain, with emphasis on polarization effects
3. Latest research trend of mobile radio propagation

4. Development of Dual-Polarization Phased-Array Weather Radar

The commission business meeting of URSI-F was held at the same time on that date, and five commission members attended with one of them connected by Skype, satisfying a quorum of the business meeting. There was a discussion on a new constitution of the officers in URSI-F committee members and a plan of the URSI-F meetings in the next year.

2. Others

2015 URSI-Japan Radio Science Meeting (URSI-JRSM 2015) was held in O-okayama Campus, Tokyo Institute of Technology, on September 3-4, 2015. The invited paper entitled "On Physical Limit of Wireless Data Transmission from Radiowave Propagation Viewpoint" was presented by Prof. Karasawa as the representative of URSI-F. In addition, twelve papers relevant to URSI-F are presented in the poster session. Also, the commission business meeting of URSI-F was held on September 4, and four commission members attended. There was a discussion on the special events in commemoration of 600th meeting which was held in NICT this December.